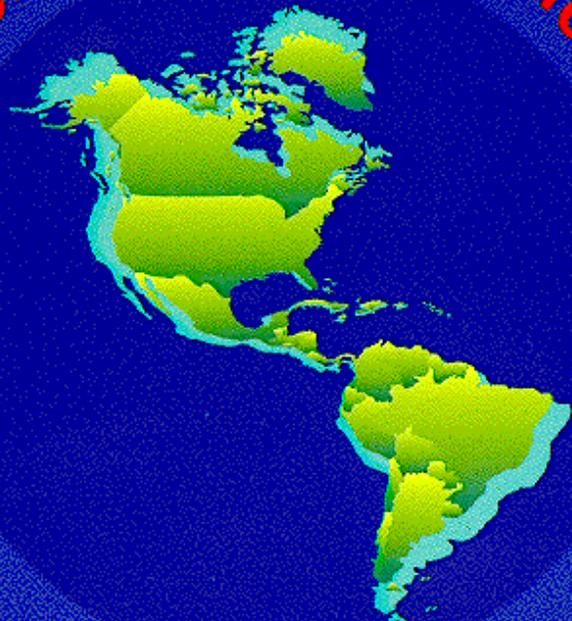


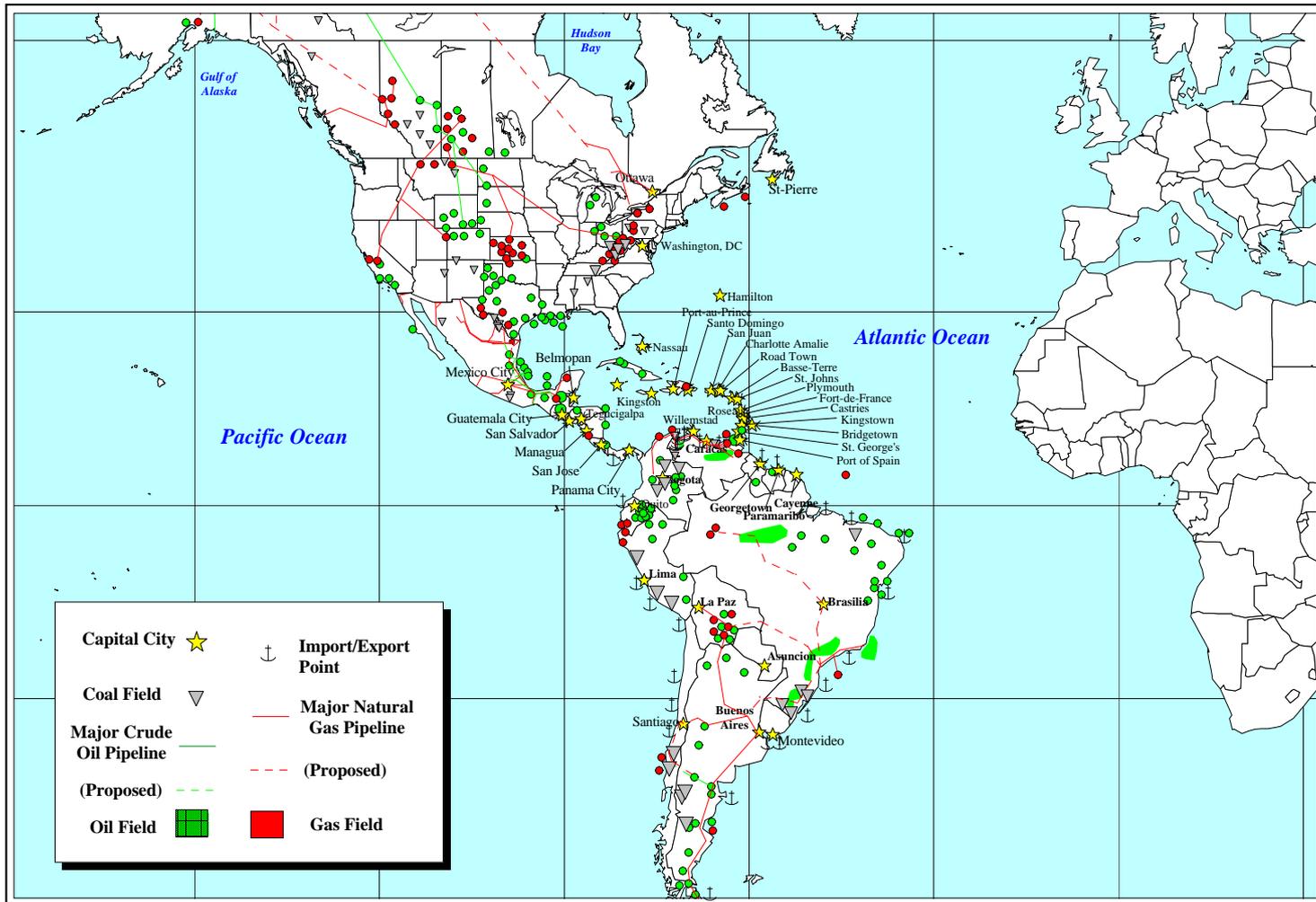
Energy In The Americas



October 1995

U. S. Department of Energy
Energy Information Administration

The Americas



summit.wor - 10/95

Electronic Publications Resources

▶ **Internet Resources**

- Energy Information Administration (EIA), United States Department of Energy:

EIA Home Page	http://www.eia.doe.gov
EIA Gopher Site	gopher://gopher.eia.doe.gov
EIA FTP Site	ftp://ftp.eia.doe.gov

- The Summit of the Americas has its own world-wide web site located at:

<http://www.eia.doe.gov/summit/summit.html>

▶ **Other Electronic Resources**

- EPUB Bulletin Board: (202) 586-2557
- CD-ROM version of EIA publications, databases, and applications will be available in January 1996.

▶ **For further information, contact:**

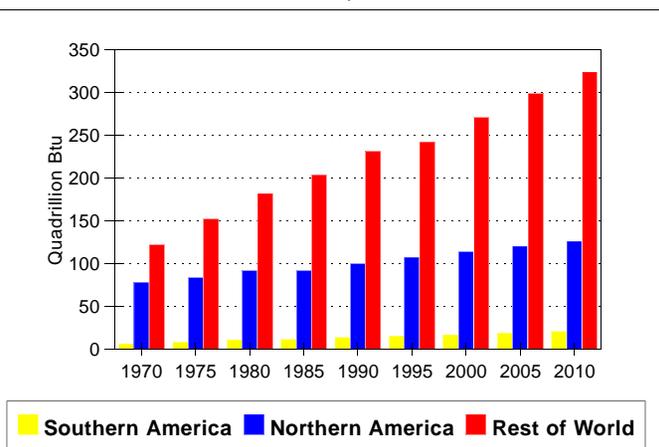
National Energy Information Center, EI-23 1
Energy Information Administration
U.S. Department of Energy
Forrestal Building, Room 1F-048
Washington, DC 20585 USA

Telephone: (202) 586-8800
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1. The Americas in a World Context

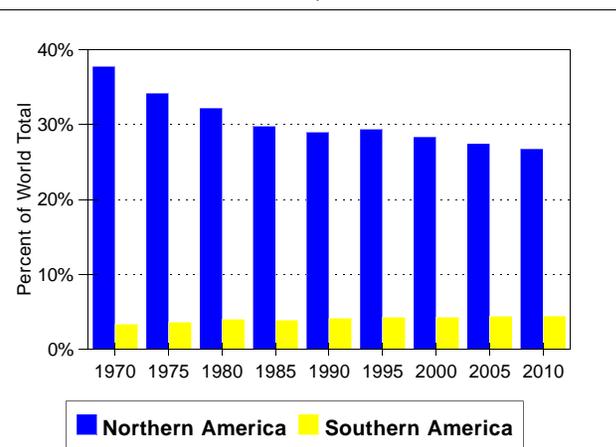
Energy Consumption ...

Energy Consumption in a World Context, 1970-2010



Northern America = Canada, United States, Mexico

Energy Consumption in a World Context, 1970-2010

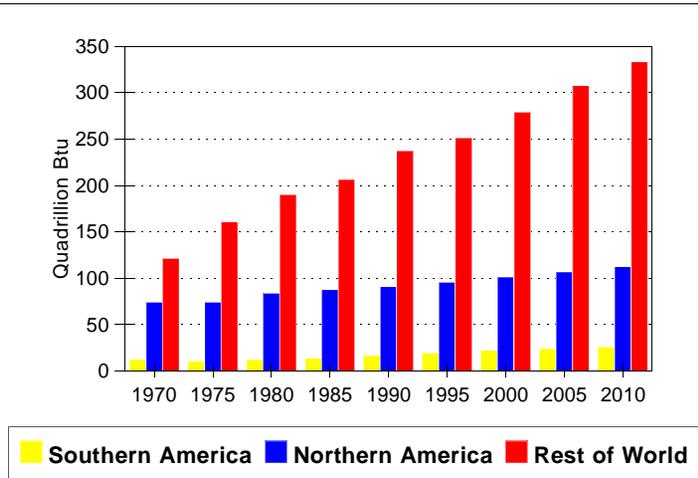


Southern America = South America, Central America, Caribbean

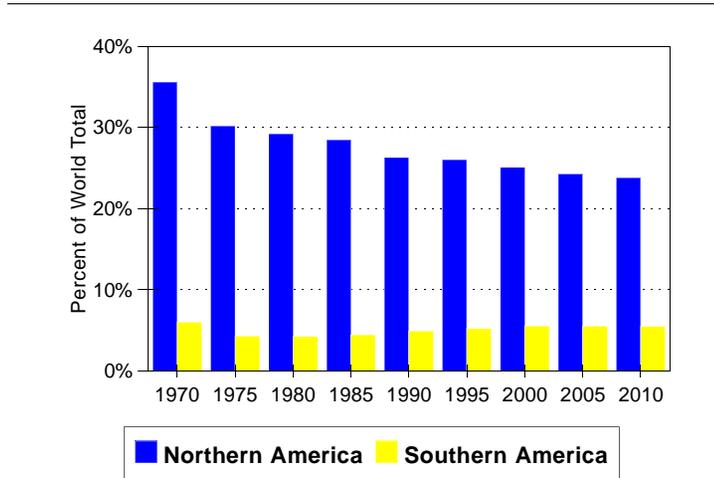
- ▶ **Energy consumption is growing throughout the Americas, but much more rapidly in the south (defined here to include South America, Central America, and the Caribbean) than in the north (Canada, Mexico, and the United States).**
 - Energy consumption has grown in both northern and southern America since 1970. Between 1970 and 1995, northern American energy consumption increased 37% (from 79 to 108 quadrillion British thermal units, quads), while southern America more than doubled its energy consumption (from 6.9 to 15.8 quads).
 - As a share of world energy consumption, northern America has declined from a high of 38% in 1970 to 29% in 1995, while southern America has increased from 3.3% to 4.3%.
 - Energy consumption in northern America is expected to continue its decline as a share of the world total (to about 27%) through 2010, while southern America is expected to increase slightly (to about 4.5%).
 - Northern America’s share of world energy consumption is declining for a variety of reasons, particularly that region’s broad economic shift away from relatively energy-intensive industries (like primary metals, chemicals and petroleum) towards less energy-intensive industries (the service sector in particular).

Energy Production ...

Energy Production in a World Context, 1970-2010



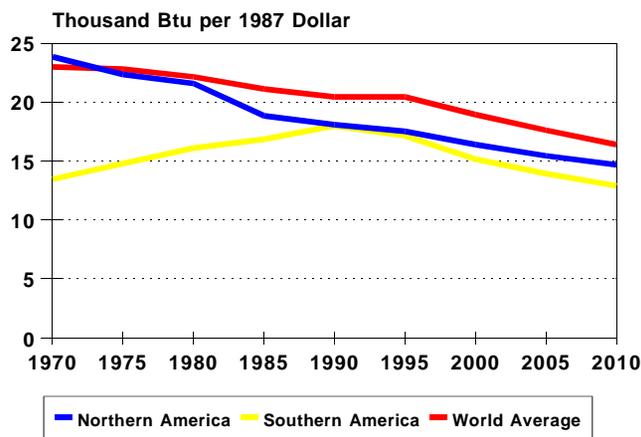
Energy Production in a World Context, 1970-2010



- ▶ **Energy production also has risen substantially since 1970 throughout the Americas, and is expected to continue growing through 2010. Production has fallen sharply, however, as a share of the world total.**
 - Northern American energy production grew from 74 quadrillion Btu (quads) in 1970 to 95 quads in 1995, and is forecast to reach 113 quads in 2010. Southern American energy production grew from 12.5 quads in 1970 to 19.2 quads in 1995, and is expected to near 26 quads in 2010.
 - As a share of world energy production, northern America has declined sharply, from 36% in 1970 to 26% in 1995, while southern America has fallen slightly, from 6% to 5.2%.
 - Energy production in northern America is expected to continue its decline as a share of the world total (to about 24%) through 2010, while southern America is expected to increase slightly (to about 5.5%).

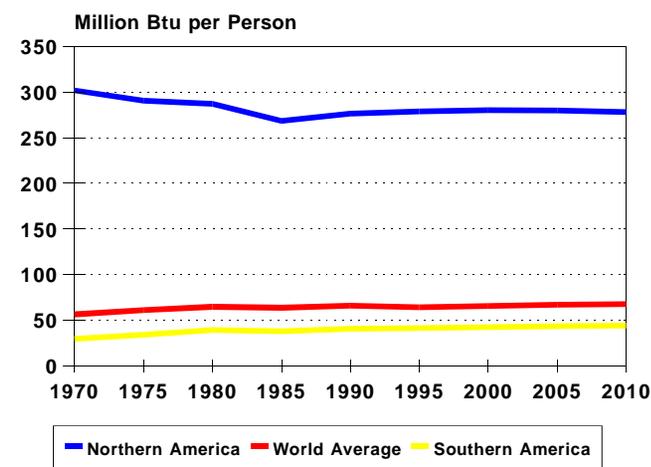
Energy Intensity ...

Energy Consumption* per Dollar of GDP



*Commercial energy only

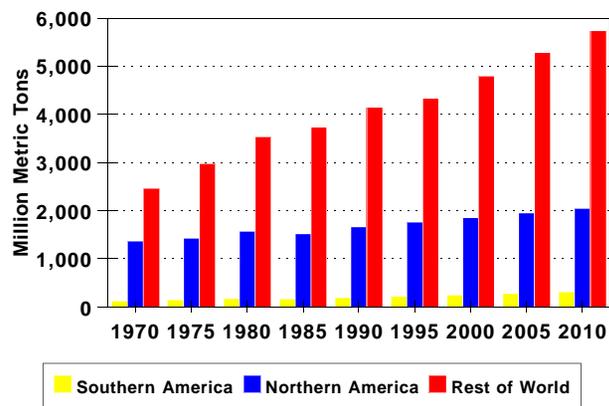
Energy Consumption per Capita



- ▶ **As of 1995, northern and southern America consumed approximately the same amounts of energy to produce a dollar of economic output, but northern America consumed more than 5 times more energy on a per capita basis.**
 - Interregional differences between northern and southern America in energy intensity (energy consumption per unit of economic output) narrowed between 1970 and 1990, and the energy intensities of their economies are now about equal.
 - Southern American energy consumption per constant dollar of gross domestic product (GDP) rose steadily between 1970 and 1990, before leveling off and beginning to fall in the early 1990s.
 - Northern America's energy/GDP ratio fell sharply between 1970 and 1995, with this trend expected to continue through 2010.
 - Energy consumption per person fell slightly in northern America between 1970 and 1995, while rising by about 30% in southern America. Per capita energy consumption should remain relatively constant in both regions through 2010.

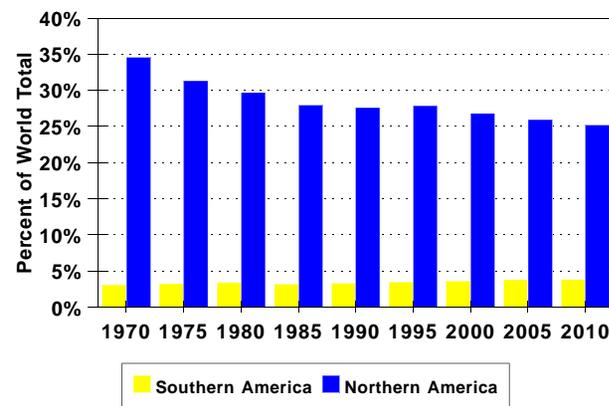
Carbon Emissions ...

Carbon Emissions* in a World Context, 1970-2010



*Note: From commercial fossil fuel consumption only

Carbon Emissions* in a World Context, 1970-2010

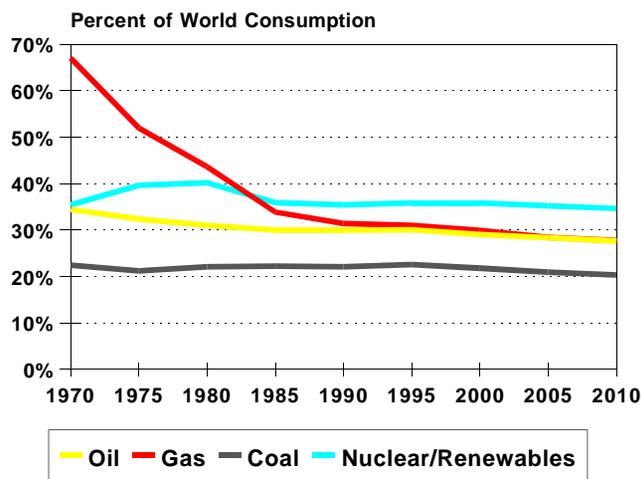


*Note: From commercial fossil fuel consumption only

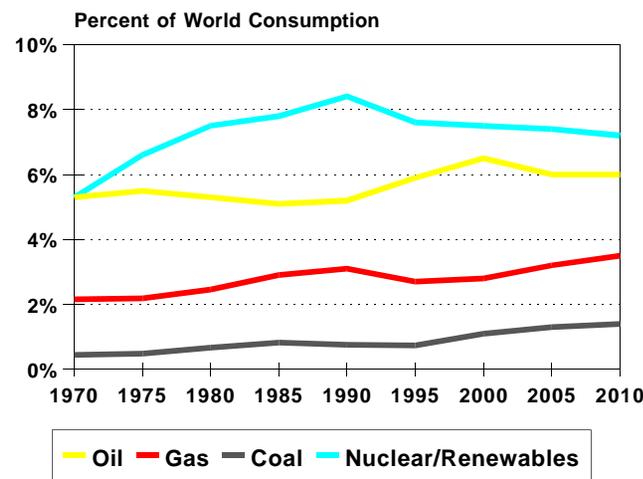
- ▶ **Emissions of carbon from the burning of fossil fuels are growing in both northern and southern America.**
 - Carbon emissions in southern America nearly doubled, from 122 million metric tons (mmt) in 1970 to 221 mmt in 1995, and are projected to reach 313 mmt by 2010.
 - Carbon emissions have also grown, but at a slower rate, in northern America. Carbon emissions in this region reached 1765 mmt in 1995, a 29% increase since 1970, and are expected to grow another 16%, to 2043 mmt, by the year 2010.
 - Northern America's share of world carbon emissions has fallen from 35% in 1970 to 28% in 1995, and is expected to fall further, to 25%, by 2010.
 - Southern America's carbon emissions, on the other hand, have grown from 3.1% of world emissions in 1970 to 3.5% in 1995, and are expected to reach 3.9% in 2010.
 - Northern America emitted more than 8 times as much carbon as southern America in 1995.

Fuel Consumption in a World Context...

Northern America

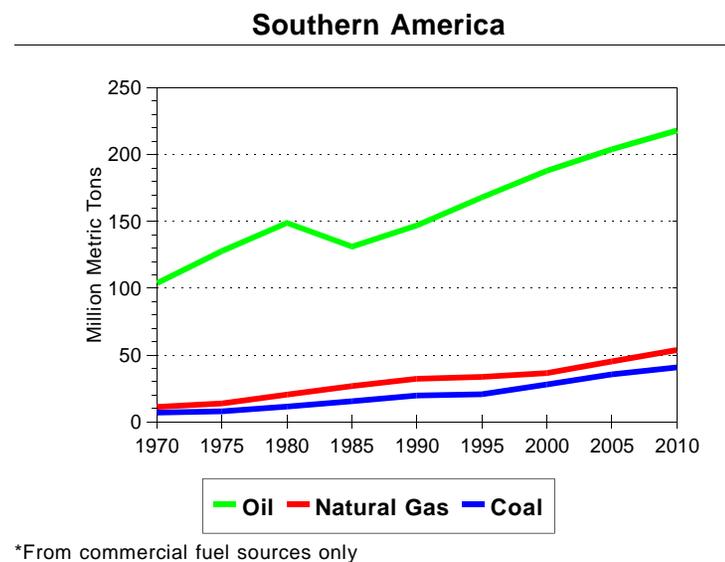
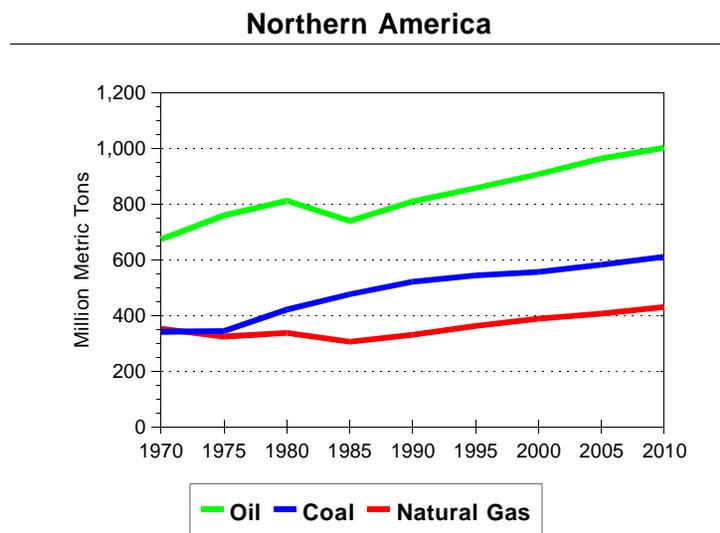


Southern America



- ▶ **In 1995, northern America accounted for 29% of total world energy consumption, while southern America made up far less -- about 4%.**
 - Northern America consumed around 36% of the world’s nuclear, hydroelectric, and other renewable energy in 1995. It also accounted for 31% of the natural gas, 30% of the oil, and 23% of the coal consumed worldwide.
 - Southern America accounted for around 8% of the world’s nuclear, hydroelectric, and other renewable energy consumption in 1995. It also used 6% of the oil, 3% of the natural gas, and about 1% of the coal consumed worldwide.
 - Between 1970 and 1995, northern America’s share of world natural gas consumption fell sharply, from 67% to 31%. Other fuels approximately maintained their shares (although oil fell from 34% to 30%).
 - Southern America’s shares of world oil, gas, coal, and hydroelectric/nuclear power all increased between 1970 and 1995.

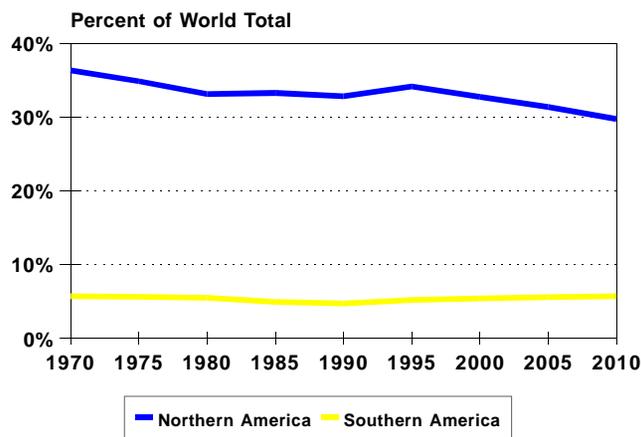
Carbon Emissions by Fuel Type...



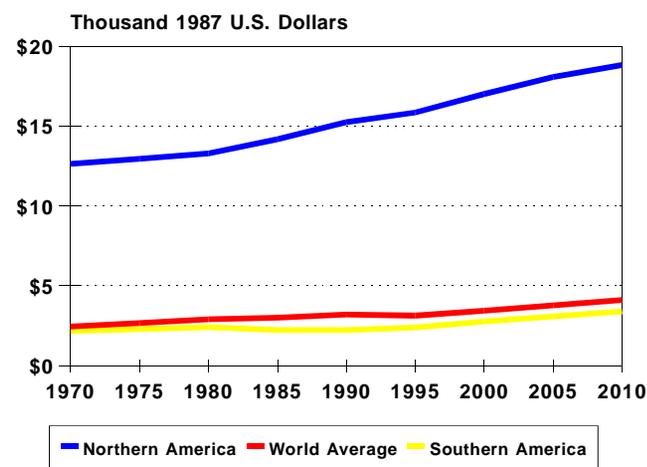
- ▶ **Between 1970 and 1995, carbon emissions increased for all fuels in both northern and southern America.**
 - In southern America, oil is responsible for the overwhelming majority (about 78%) of carbon emissions, with natural gas and coal far behind. In northern America, oil accounts for about half of carbon emissions, followed by coal and natural gas.
 - Carbon emissions by all three fossil fuel types grew in northern and southern America between 1970 and 1995, and are projected to continue to grow through 2010.
 - Oil's share of total carbon emissions is expected to remain nearly constant (at 49%) in northern America through 2010. In southern America, oil's share is expected to fall, from 78% in 1995 to 70% in 2010.
 - Natural gas and coal are likely to increase their shares of southern American carbon emissions through 2010, while in northern America, their shares should remain approximately constant.

Economics and Demographics...

Gross Domestic Product*



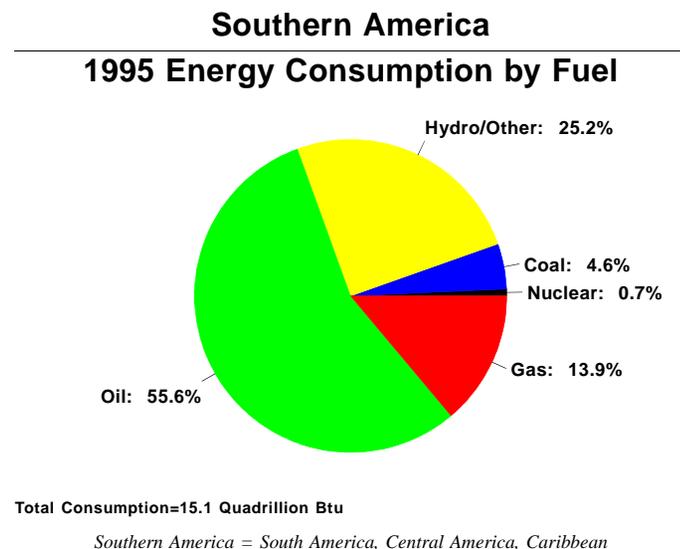
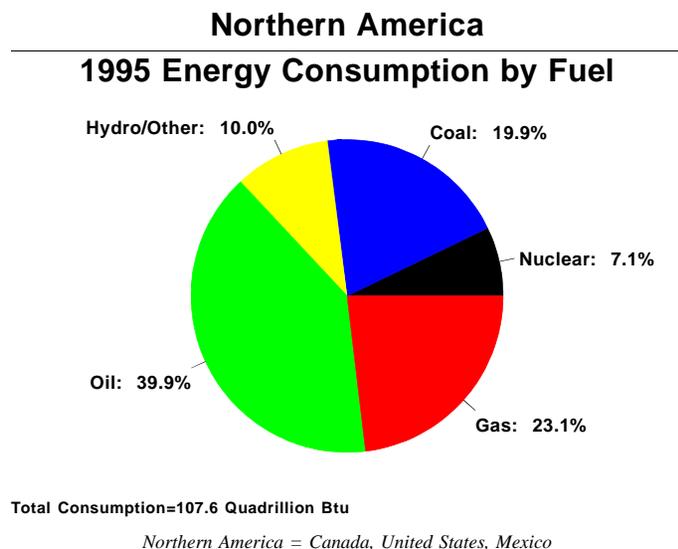
Gross Domestic Product per Capita



- ▶ **Northern America, with about 7% of world population, accounts for about 34% of world economic output. Southern America, with about the same population, accounts for only about 5% of world gross domestic product (GDP).**
 - Real GDP in northern America declined from 36% of the world total in 1970 to 34% in 1995, and is projected to fall below 30% of global economic output by 2010.
 - In southern America, real GDP fell from 6% of the world total in 1970 to 5% in 1995. This should rebound to 6% by 2010.
 - Average per capita income (measured in constant 1987 dollars) in northern America rose from around \$13,000 in 1970 to about \$16,000 in 1995. By 2010, northern American per capita income is expected to approach \$18,000 (nearly 5 times the world average).
 - Southern American per capita income, on the other hand, rose only slightly between 1970 and 1995, from \$2,200 to \$2,400. By 2010, southern American per capita income is projected to reach \$3,400 (about \$700 below the world average).

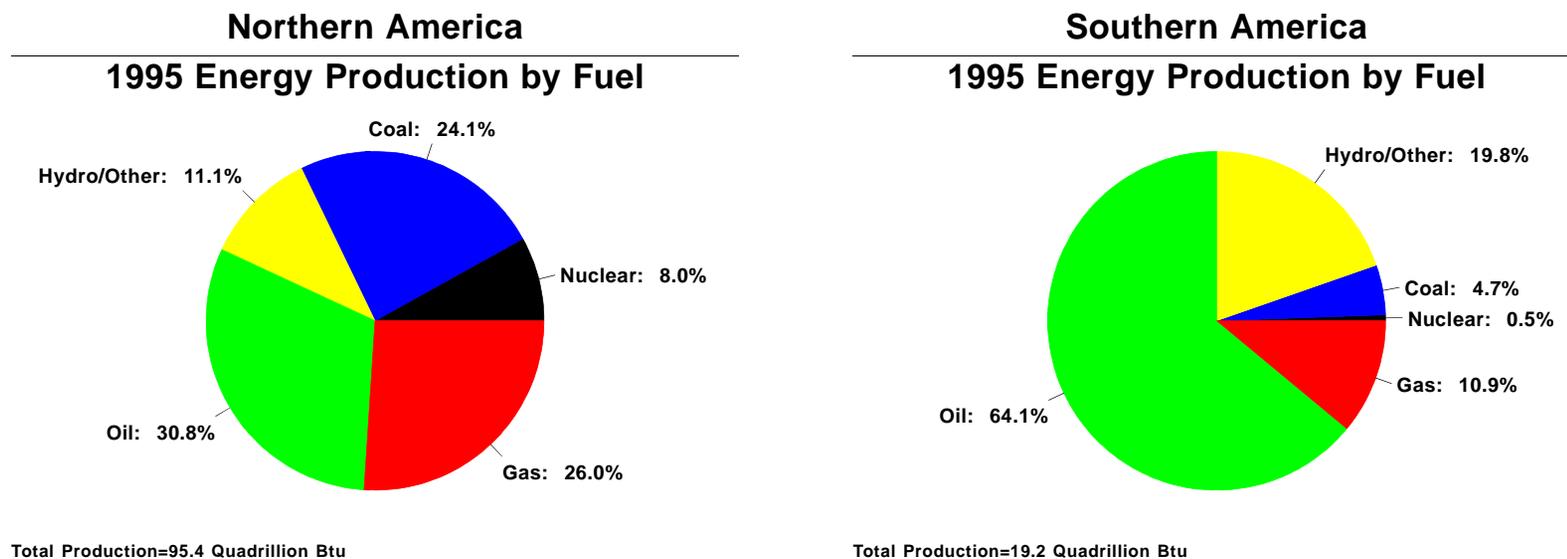
2. Energy Use, Economy, and Environment in the Americas

Fuel Consumption Mix ...



- ▶ **Northern and southern America show markedly differing fuel consumption patterns.**
 - Oil, for instance, makes up about 40% of energy consumption in northern America, vs. 56% in southern America.
 - Coal, on the other hand, makes up a far greater share (20%) of northern American energy consumption than of southern American (less than 5%).
 - Hydroelectricity and "other" account for about 25% of consumption in southern America (mostly hydro), 2 1/2 times their share in northern America (10%, also mostly hydro). "Other" includes geothermal, wind, and solar power.
 - Natural gas, the use of which requires extensive pipeline systems, is also more highly utilized (23% of total consumption) in northern America than in southern America (14%).
 - Nuclear power is far more highly developed in northern America, where it makes up 7% of total energy consumption, than in southern America, where it accounts for less than 1%.

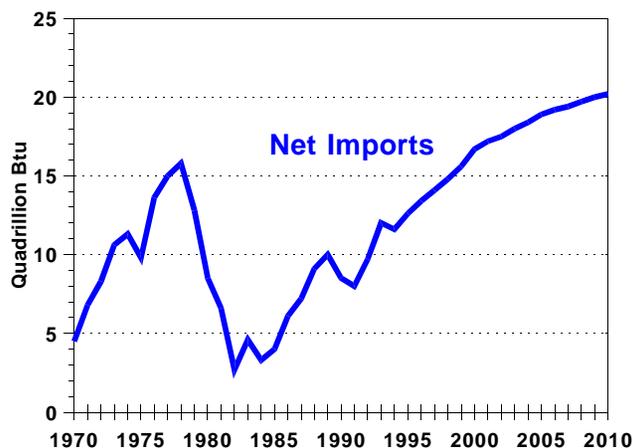
Fuel Production Mix ...



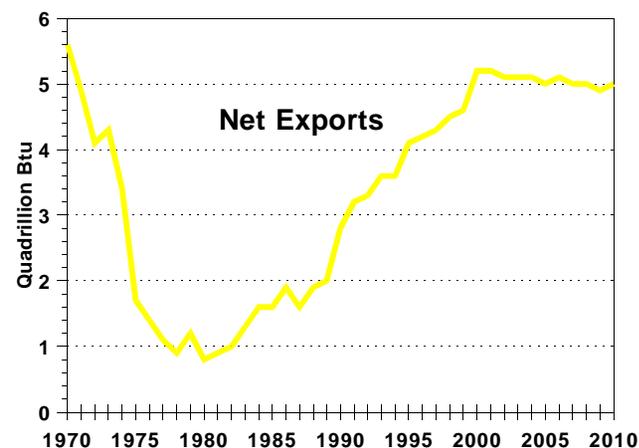
- ▶ **Northern and southern America display widely divergent fuel production patterns as well.**
 - Only about 31% of northern American energy supply, for instance, is accounted for by oil, compared to southern America's 64% share for oil production.
 - Coal, on the other hand, makes up around 24% of northern America's fuel production mix, compared to less than 5% in southern America.
 - Natural gas also makes up a larger share (26%) of the northern American fuel mix than it does in southern America, where it accounts for only 11% of production.
 - Hydroelectricity/other account for 11% of northern America's total energy production, as opposed to 20% in southern America. Nuclear power, on the other hand, makes up a far greater share of northern America's fuel production mix (8%) than southern America's (0.5%).

Overall Energy Balance ...

Northern America's Energy Imports



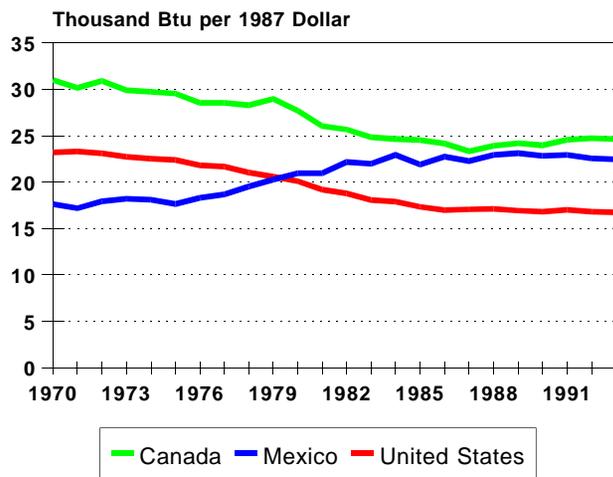
Southern America's Energy Exports



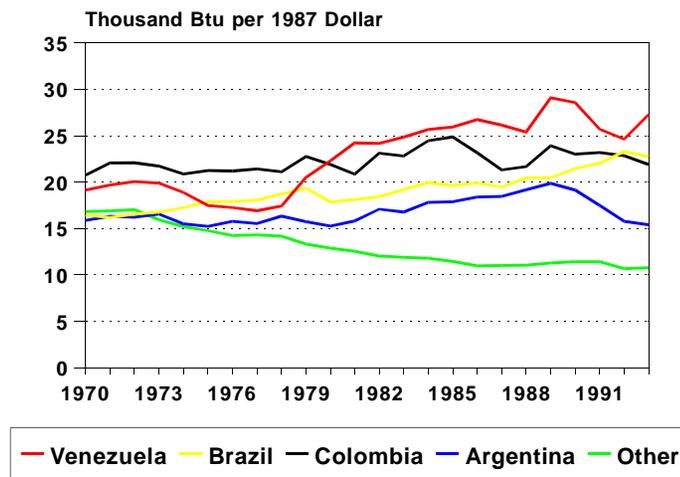
- ▶ **Northern America is a major (and growing) net importer of energy, while southern America is a large (and growing) net exporter.**
 - Northern America currently is a net importer of 12.6 quadrillion Btu (quads) of energy per year, while southern America is a net exporter of about 4 quads.
 - Northern America's net imports peaked at 15.8 quads in 1978, dropped sharply following the 1979/1980 oil crisis, reached their low point of 2.7 quads in 1982, and then began rising again. By 2010, northern America is forecast to be importing around 20 quads of energy on a net basis.
 - Southern America's net exports were 5.6 quads in 1970, dropped sharply (to 0.8 quads) through 1980, and then began a sharp rise which should increase the region's net energy exports to 5.2 quads in 2000.

Energy Consumption per Dollar of GDP ...

Northern America

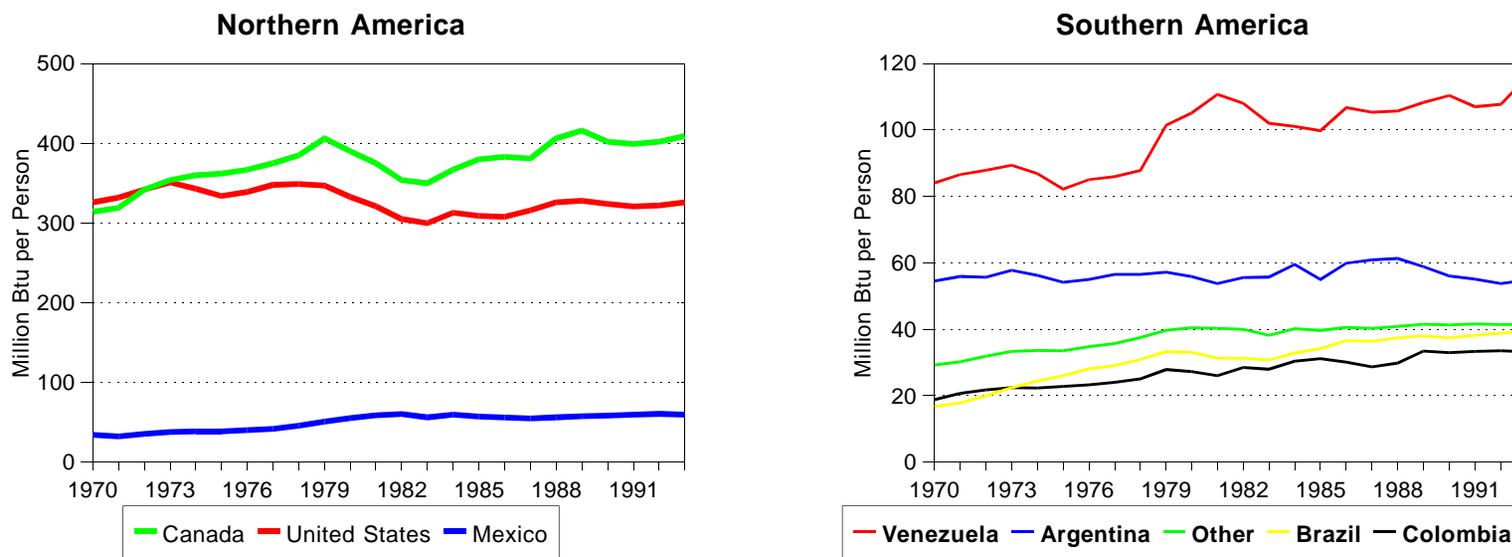


Southern America



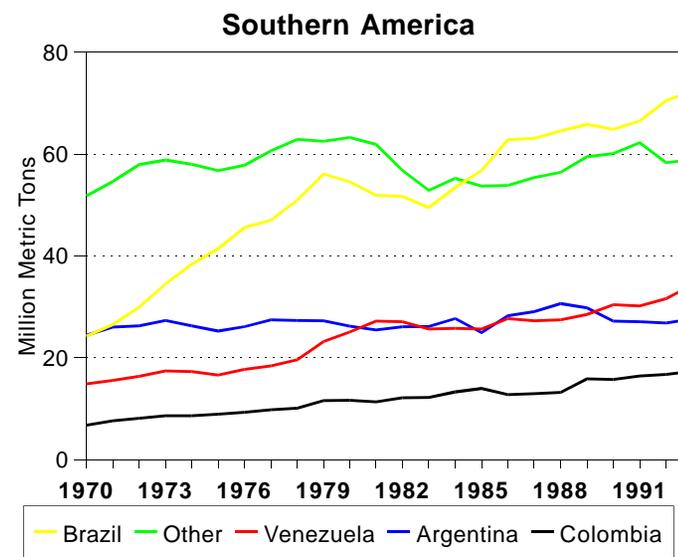
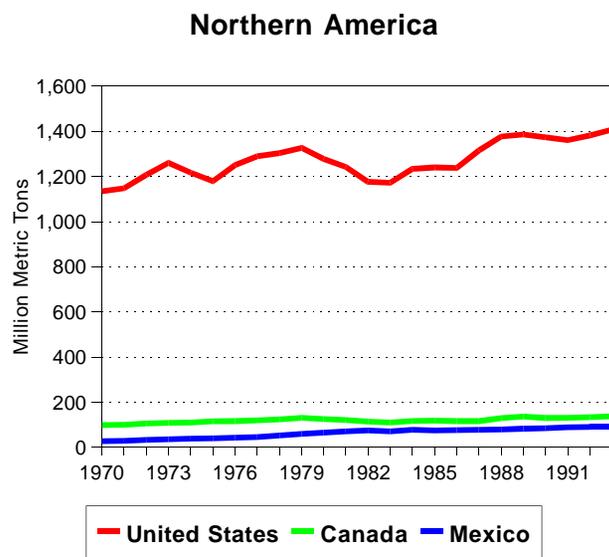
- ▶ **Energy intensities generally fell in northern America (except for Mexico) between 1970 and 1993, but were mixed in southern America.**
 - In northern America, Canada consistently had the highest energy/GDP ratio between 1970 and 1993, although it declined 26% during the period. The U.S. energy/GDP ratio also declined sharply (28%) between 1970 and 1993, while Mexico's rose 27%.
 - In southern America, oil-producing countries like Venezuela, Brazil, and Colombia generally increased their energy/GDP ratios between 1970 and 1993, while Argentina's and other regional country ratios remained approximately constant or fell.
 - In general, northern and southern American countries consume similar amounts of energy to produce a dollar of output.

Energy Consumption per Capita ...



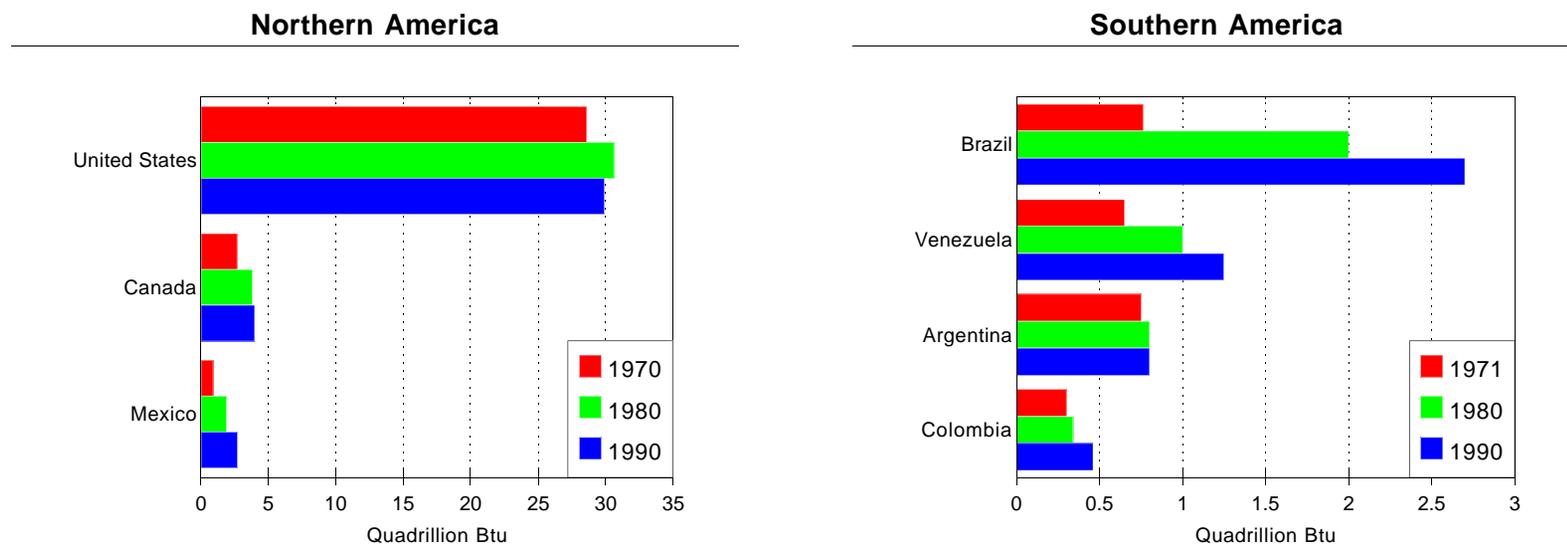
- ▶ **Between 1970 and 1992, per capita energy consumption was consistently much higher in northern America than in southern America, and tended to rise in most countries of both regions.**
 - In northern America, U.S. energy consumption per person remained approximately flat between 1970 and 1993, while Canada's and Mexico's rose 30% and 76%, respectively.
 - In southern America, Brazil's per capita energy consumption rose 135%, compared to 77% in Colombia, 42% in "other" southern America, 38% in Venezuela, and approximately no change in Argentina.
 - Despite rapid increases in Mexico and in many countries of southern America, U.S. and Canadian per capita energy consumption remained far above any other country of northern or southern America between 1970 and 1993.

Energy-Related Carbon Emissions Patterns ...



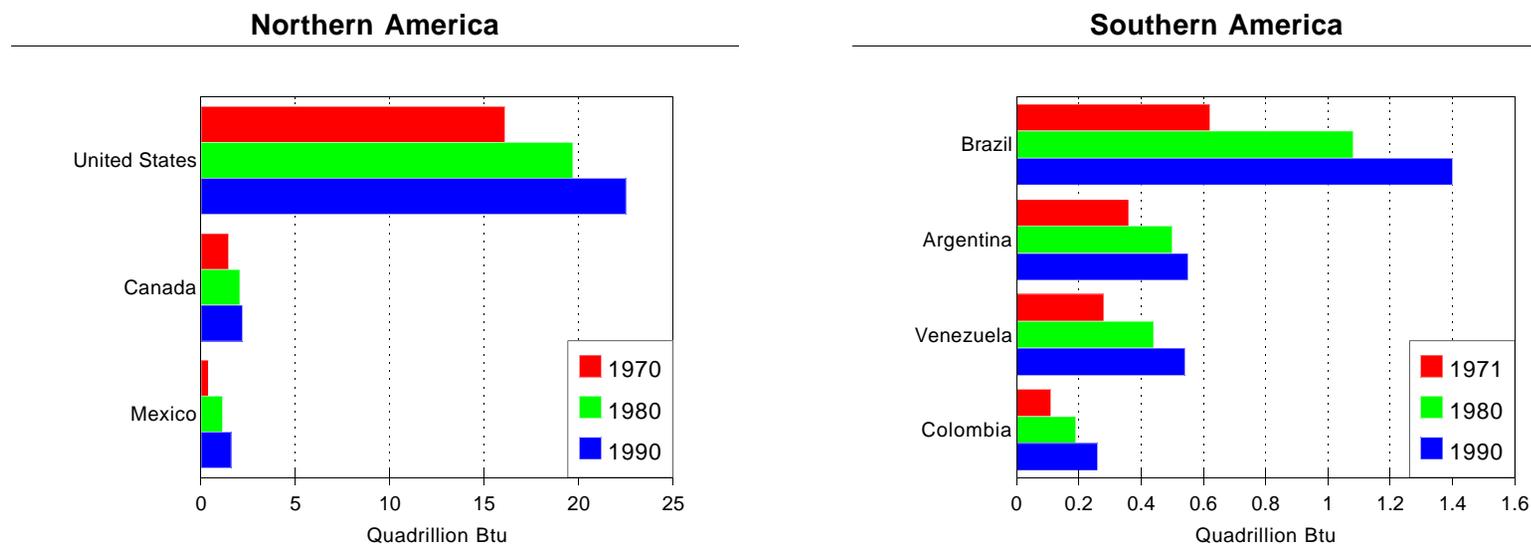
- ▶ **Carbon emissions increased significantly in nearly every country of northern and southern America between 1970 and 1993, although the United States still emitted more carbon than all other countries of the Americas combined.**
 - The most rapid growth in carbon emissions between 1970 and 1993 was in Mexico (221%), followed by Brazil (190%), Colombia (147%), Venezuela (112%), Canada (38%), the United States (24%), "other" (12.5%), and Argentina (9%).
 - The United States, which accounts for nearly 90% of northern American GDP and about 68% of its population, also is responsible for the vast majority of northern America's carbon emissions.
 - With the largest population and economy by far in southern America, Brazil emits more carbon than any other country in the region. Besides "other" countries, Venezuela -- by far the largest regional oil producer -- ranks second in carbon emissions, followed by Argentina and Colombia (another large oil producer).

Industrial Energy Consumption ...



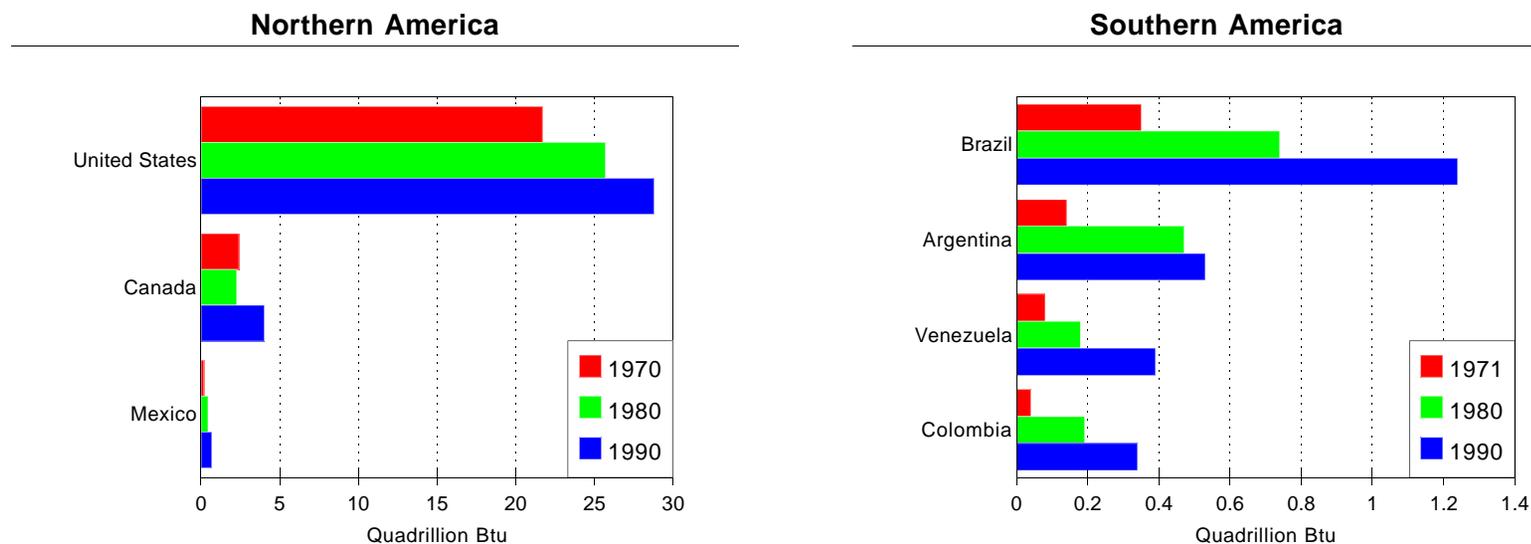
- ▶ **Industrial energy consumption in the Americas in 1990 was dominated by the United States, followed by Canada, Mexico, Brazil, Venezuela, Argentina, and Colombia.**
 - Among major industrial energy consumers, consumption grew most rapidly between 1970 and 1990 in Brazil (+255%) and Mexico (+200%), followed by Venezuela (+92%), Colombia (+53%), Canada (+48%), Argentina (+7%), and the United States (4.5%).
 - In northern America, the U.S. industrial sector in 1970 consumed 8 times as much energy as Canadian and Mexican industry combined. Due to a sharply lower growth rate, however, U.S. industry by 1990 consumed only about 4 times as much energy as Canada and Mexico combined. Overall, industrial sector energy consumption grew 14% in northern America between 1970 and 1990, compared to 112% growth in southern America.
 - In southern America, Brazil's industrial sector experienced particularly explosive growth during the 1970s and 1980s. Whereas in 1970 Brazilian industry consumed about as much energy as the Argentine industrial sector, by 1990 it consumed more than 3 times as much.

Transportation Energy Consumption ...



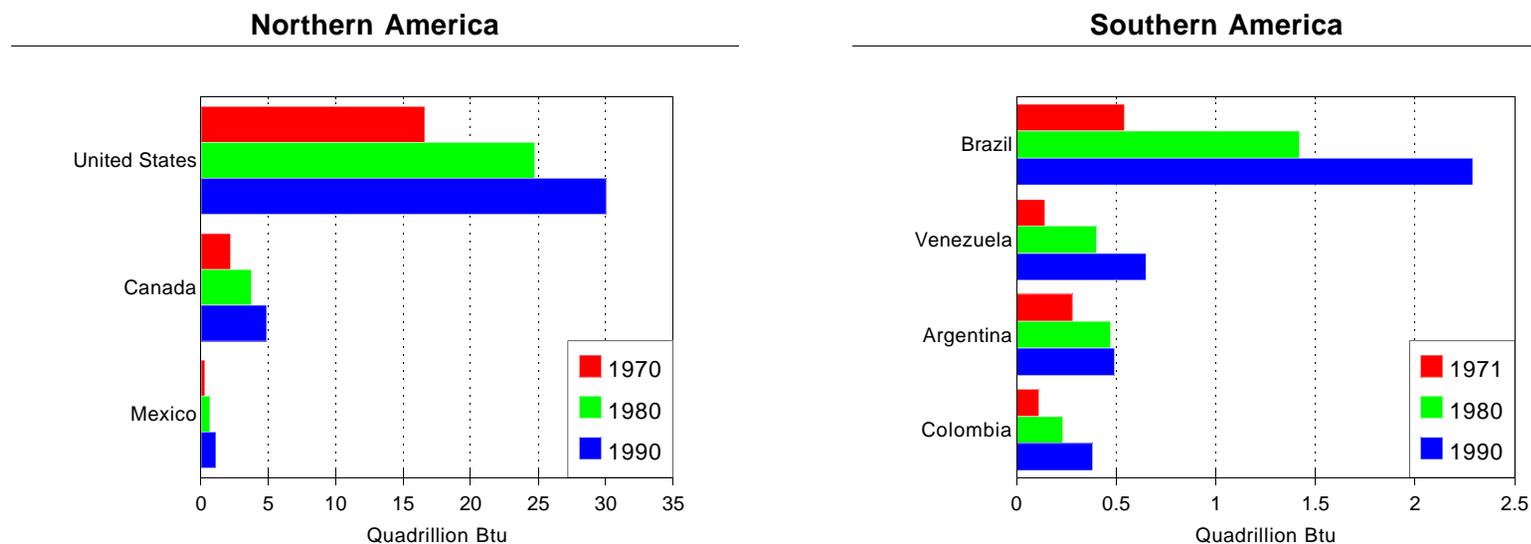
- ▶ **Transportation energy consumption grew rapidly in both northern and southern America between 1970 and 1990.**
 - Transportation sector energy consumption grew 47% (from 17.9 to 26.3 quads) in northern America and 100% (from 1.4 to 2.8 quads) in southern America during the period.
 - In northern America, Mexico increased its transportation energy consumption by 300% between 1970 and 1990, compared to increases of 57% and 40% for Canada and the United States, respectively. Despite these differences in growth rates, as of 1990 the U.S. transportation sector still consumed nearly 6 times as much energy as Canada and Mexico combined.
 - In southern America, Brazil's transportation sector increased its energy consumption by 126%, from 0.6 quads in 1970 to 1.4 quads in 1990. Energy consumption also grew rapidly in Colombia's transportation sector (+136%, from .11 to .26 quads), in Venezuela's (+93%, from .28 to .54 quads), and in Argentina (+53%, from .36 to .55 quads).
 - The transportation sector consistently consumed less energy than the industrial sector in both northern and southern America between 1970 and 1990, although it grew twice as rapidly during the period (51% vs. 21% for the combined regions).

Residential/Commercial Energy Consumption ...



- ▶ **Residential/commercial sector energy consumption grew 38% in northern America between 1970 and 1990, and a sharp 310% in southern America during the same time period.**
 - As with the industrial and transportation sectors, the United States accounted for by far the largest single share of residential/commercial energy consumption in either northern or southern America between 1970 and 1990. The United States was followed by Canada, Brazil, Mexico, and Argentina.
 - Within northern America, U.S. residential/commercial energy consumption grew 33% from 1970 to 1990, vs. 67% growth in Canada and a 250% jump in Mexico.
 - In southern America, Colombia's residential/commercial sector increased its energy consumption by 750% between 1970 and 1990, compared to Venezuela's 388%, Argentina's 279%, and Brazil's 254%.

Electricity Overview ...



- ▶ **Electricity consumption in the Americas increased 97% between 1970 and 1990 (88% in northern America and 247% in southern America).**
 - In northern America, Mexican electric power consumption grew fastest between 1970 and 1990 (267%, from 0.3 to 1.1 quads), compared to growth of 123% (from 2.2 to 4.9 quads) in Canada and 81% (16.6 to 30 quads) in the United States.
 - In southern America, Venezuelan electricity consumption grew 364% between 1971 and 1990, ahead of Brazil (324%), Colombia (245%), and Argentina (75%). As of 1990, Brazil consumed more electricity (2.3 quads) than Venezuela, Argentina, and Colombia combined (1.5 quads).
 - Hydroelectric power accounts for a larger share of overall energy consumption in southern America than in any other major world region. Hydroelectricity is also extremely important in Canada's energy mix, and significant in the United States.

3. Energy Statistics for the “Summit” Countries

Primary Energy Consumption and Production, 1993 (Quadrillion British Thermal Units, Btu)

Country	Consumption	Production	Difference*	Country	Consumption	Production	Difference*
Canada	11.390	15.370	3.980	Argentina	1.880	2.110	0.230
Mexico	5.130	7.840	2.710	Bolivia	0.100	0.180	0.080
United States	<u>83.880</u>	<u>65.310</u>	<u>-18.570</u>	Brazil	6.160	4.150	-2.010
Subtotal, North America	100.400	88.520	-11.880	Chile	0.610	0.290	-0.320
Antigua & Barbuda	0.010	--	-0.010	Colombia	1.050	2.010	0.960
The Bahamas	0.030	--	-0.030	Ecuador	0.310	0.810	0.500
Barbados	0.020	0.004	-0.016	Guyana	0.010	0.000	-0.010
Dominica	0.001	0.000	-0.001	Paraguay	0.050	0.280	0.230
Dominican Republic	0.150	0.010	-0.140	Peru	0.360	0.380	0.020
Grenada	0.002	--	-0.002	Suriname	0.030	0.030	0.000
Haiti	0.010	0.003	-0.007	Uruguay	0.120	0.080	-0.040
Jamaica	0.120	0.001	-0.119	Venezuela	<u>2.400</u>	<u>7.270</u>	<u>4.870</u>
St. Kitts & Nevis	0.001	--	-0.001	Subtotal, South America	13.080	17.590	4.510
St. Lucia	0.003	--	-0.003	Belize	0.005	--	-0.005
St. Vincent/Grenadines	0.001	0.000	-0.001	Costa Rica	0.090	0.040	-0.050
Trinidad & Tobago	<u>0.270</u>	<u>0.510</u>	<u>0.240</u>	El Salvador	0.070	0.020	-0.050
Subtotal, Caribbean	0.618	0.528	-0.090	Guatemala	0.090	0.040	-0.050
Puerto Rico	0.340	0.003	-0.337	Honduras	0.060	0.020	-0.040
U.S. Virgin Islands	<u>0.120</u>	--	<u>-0.120</u>	Nicaragua	0.040	0.010	-0.030
Subtotal, U.S. Territories	0.460	0.003	-0.457	Panama	<u>0.110</u>	<u>0.020</u>	<u>-0.090</u>
				Subtotal, Central America	0.465	0.150	-0.315
				Total Americas	115.023	106.791	-8.232

* A negative number indicates consumption exceeds production, with the deficit made up from stocks and/or imports; a positive number indicates production exceeds consumption, with the difference either added to domestic stocks or exported.

Note: "Americas" excludes Cuba and European territories in the Caribbean.
1 quadrillion Btu (quad) ≈ about 0.5 million barrels/day of oil equivalent.

Energy in the "Summit" Countries*

- ▶ "Summit" countries vary in terms of the size of their economies and their energy consumption per dollar of economic output.
 - **Per capita Gross Domestic Product (GDP)** in the Americas ranges from less than \$240 in Haiti to nearly \$20,000 in the United States. With the exception of the United States and Canada, per capita GDP is less than \$10,000.
 - **Energy consumption per dollar of GDP** is highest in the U.S. Virgin Islands and Trinidad and Tobago, which have large petroleum sectors with respect to the size of their economies. Most countries, including the United States, use less than 20,000 British Thermal Units (Btus) of energy per dollar of GDP.
- ▶ The countries of **North America** both consume and produce more energy than all other "Summit" countries combined.
 - In 1993, Canada, Mexico, and the United States accounted for 87% of all energy consumption, and 83% of all energy production, in the Americas. The United States dominates both production and consumption. Canada is the second largest producer and consumer in the Americas. Mexico is the third largest producer and the fourth largest consumer.
 - Unlike the United States, which consumes more energy than it produces (making it a net importer), both Canada and Mexico are net exporters of energy (producing more than they consume).
- ▶ **South American** "Summit" countries account for most of the rest of the energy produced and consumed in the Americas (11% of energy consumption and 16% of energy production in 1993).
 - The energy situation varies extensively from one South American country to another. Venezuela, for example, is the largest energy exporter in the Americas while Brazil is the second largest importer after the United States.
 - In addition to Brazil, only three other South American countries (Chile, Guyana, and Uruguay) are net importers; all other countries in South America produce more energy than they consume.
- ▶ With the exception of Trinidad and Tobago, **Central America and the Caribbean (including U.S. territories)** produce very little energy and rely on imports for most or all of their energy consumption. The U.S. Virgin Islands is a major petroleum refining center and exporter of petroleum products. The crude oil for processing, however, must be imported.

**The statistics presented in this section include the 34 countries in the Western Hemisphere with democratically elected governments plus U.S. territories in the Caribbean. Regional groupings (North America, South America, Central America, the Caribbean, and U.S. Territories) exclude Cuba and possessions of countries outside the Western Hemisphere, which are not part of the Summit of the Americas.*

Fossil Fuel Consumption in "Summit" Countries, 1993

Country	Petroleum (1,000 b/d)	Natural Gas (Bcf)	Coal (1,000 ST)	Country	Petroleum (1,000 b/d)	Natural Gas (Bcf)	Coal (1,000 ST)
Canada	1,661	2,790	52,388	Argentina	471	628	967
Mexico	1,841	968	7,262	Bolivia	26	34	--
United States	<u>17,237</u>	<u>20,293</u>	<u>878,912</u>	Brazil	1,412	145	18,637
Subtotal, North America	20,739	24,051	938,562	Chile	164	54	2,877
Antigua & Barbuda	3	--	--	Colombia	238	158	7,688
The Bahamas	15	--	--	Ecuador	123	4	--
Barbados	8	1	--	Guyana	6	--	--
Dominica	0.4	--	--	Paraguay	17	--	--
Dominican Republic	66	--	61	Peru	123	17	168
Grenada	1	--	--	Suriname	10	--	--
Haiti	5	--	--	Uruguay	32	--	--
Jamaica	52	--	44	Venezuela	<u>445</u>	<u>862</u>	<u>484</u>
St. Kitts & Nevis	1	--	--	Subtotal, South America	3,067	1,902	30,821
St. Lucia	1	--	--	Belize	2	--	--
St. Vincent/Grenadines	1	--	--	Costa Rica	26	--	40
Trinidad & Tobago	<u>22</u>	<u>218</u>	--	El Salvador	23	--	--
Subtotal, Caribbean	175.4	219	105	Guatemala	32	--	--
Puerto Rico	168	--	165	Honduras	18	--	--
U.S. Virgin Islands	<u>57</u>	--	<u>226</u>	Nicaragua	15	--	--
Subtotal, U.S. Territories	225	--	391	Panama	<u>43</u>	--	--
				Subtotal, Central America	159	--	40
				Total Americas	24,365	26,172	969,919

Note: "Americas" excludes Cuba and European territories in the Caribbean.
b/d = barrels per day; Bcf = billion cubic feet; ST = short tons

Consumption of Fossil Fuels

- ▶ **Petroleum** is the most widely used fossil fuel in the "Summit" countries. All countries consume at least some amount of oil, regardless of the availability of domestic supplies. Most have at least some refining capacity and engage in petroleum product trade on the world market.

- ▶ In contrast, consumption of **natural gas and coal** is not as widespread. In general, usage depends on the availability of either domestic or nearby resources and the extent to which these resources--along with the necessary transportation infrastructure--have been developed.
 - No country in **Central America** consumes significant volumes of natural gas, largely due to the lack of domestic supplies and the physical challenges associated with building pipelines over rugged terrain. Only Costa Rica used any coal in 1993.

 - Trinidad and Tobago is the only **Caribbean** country using significant amounts of natural gas, which is produced domestically. Barbados also consumed some natural gas from its domestic reserves.

 - Four out of the twelve **South American** countries (Guyana, Paraguay, Suriname, and Uruguay) consumed no measurable quantities of natural gas or coal in 1993. Ecuador and Bolivia consumed no coal, and Ecuador consumed only a small amount of natural gas.

- ▶ Only in North America and parts of South America are **all three major fossil fuels** used.
 - The **United States, Canada and Mexico** (which have developed their abundant domestic resources) make extensive use of petroleum, natural gas, and coal.

 - In **South America**, Argentina, Brazil, Chile, Colombia, Peru, and Venezuela all use petroleum, natural gas, and coal.

Fossil Fuel Reserves in "Summit" Countries

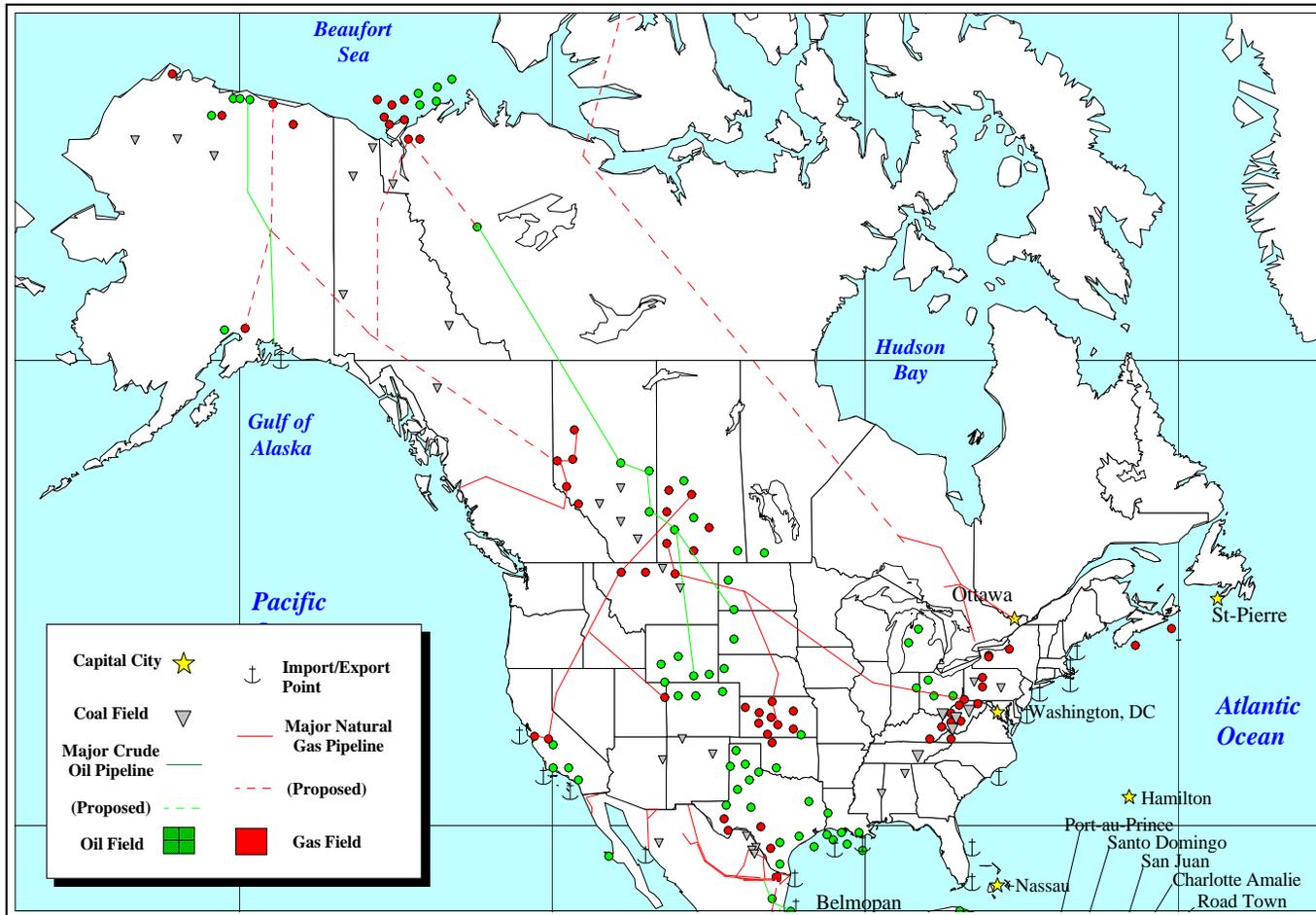
Country	Crude Oil (1,000 barrels)	Natural Gas (Bcf)	Coal (MMST)	Country	Crude Oil (1,000 barrels)	Natural Gas (Bcf)	Coal (MMST)
Canada	5,037,984	79,231	9,505	Argentina	2,216,787	18,246	143
Mexico	50,776,000	69,675	1,896	Bolivia	138,874	4,460	--
United States*	<u>22,457,000</u>	<u>163,837</u>	<u>264,682</u>	Brazil	3,797,000	4,852	2,600
Subtotal, North America	78,270,984	312,743	276,083	Chile	300,000	3,900	1,302
Antigua & Barbuda	--	--	--	Colombia	3,393,044	7,882	5,003
The Bahamas	--	--	--	Ecuador	2,014,000	3,800	26
Barbados	2,784	5	--	Guyana	--	--	--
Dominica	--	--	--	Paraguay	--	--	--
Dominican Republic	--	--	--	Peru	800,000	7,031	1,168
Grenada	--	--	--	Suriname	81,900	--	--
Haiti	--	--	--	Uruguay	--	--	--
Jamaica	--	--	--	Venezuela	<u>64,477,000</u>	<u>130,400</u>	<u>460</u>
St. Kitts & Nevis	--	--	--	Subtotal, South America	77,218,605	180,571	10,702
St. Lucia	--	--	--	Belize	--	--	--
St. Vincent/Grenadines	--	--	--	Costa Rica	--	--	--
Trinidad & Tobago	<u>488,100</u>	<u>8,458</u>	--	El Salvador	--	--	--
Subtotal, Caribbean	490,885	8,463	--	Guatemala	488,000	10	--
Puerto Rico	--	--	--	Honduras	--	--	--
U.S. Virgin Islands	--	--	--	Nicaragua	--	--	--
Subtotal, U.S. Territories	--	--	--	Panama	--	--	--
				Subtotal, Central America	488,000	10	--
				Total Americas	156,468,474	501,787	286,785

Sources: Oil & Gas Journal (12/26/94); World Energy Council (1992); Energy Information Administration (1993)

*Crude oil and natural gas estimates revised by Energy Information Administration, 8/95.

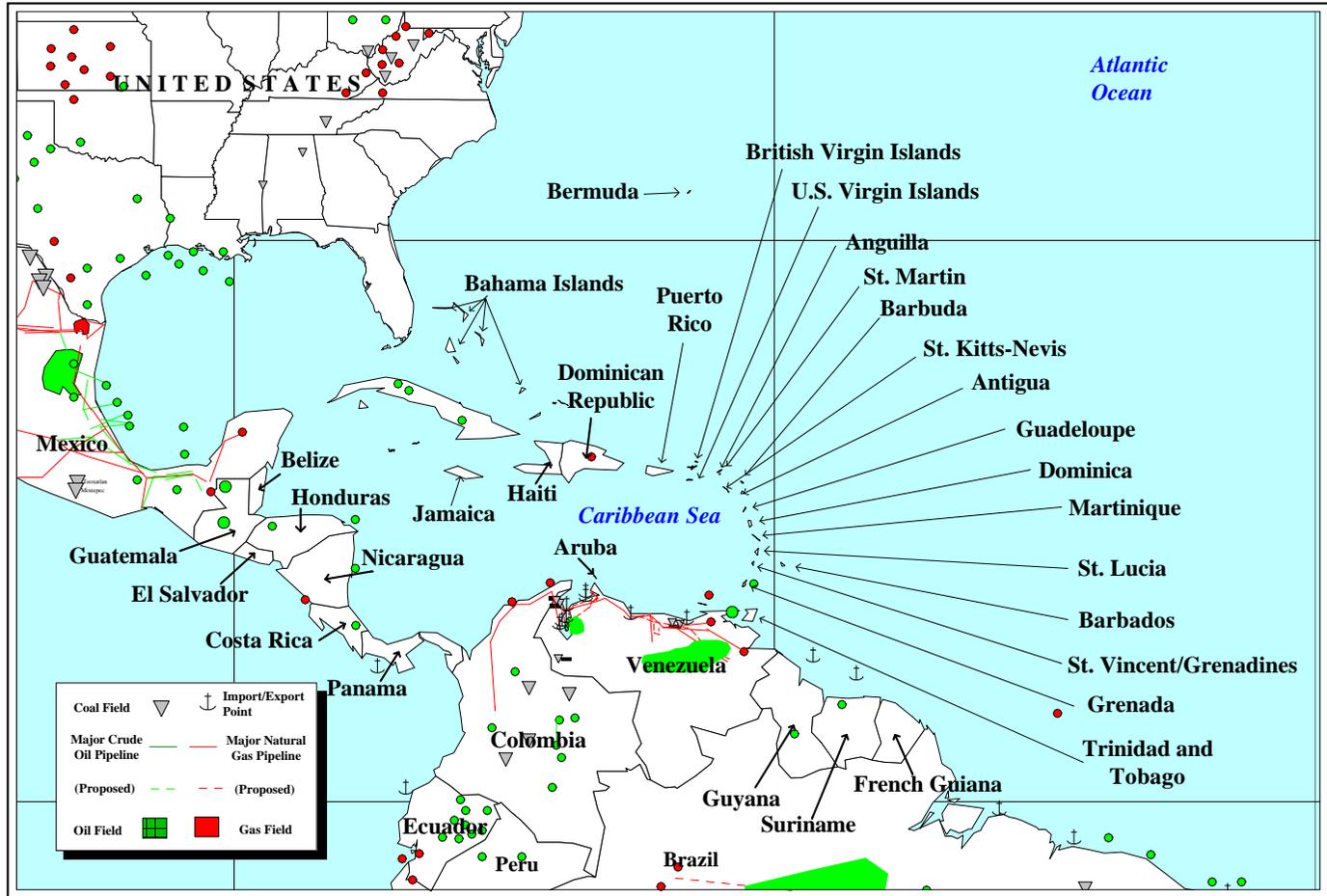
Note: "Americas" excludes Cuba and European territories in the Caribbean.
Bcf = billion cubic feet; MMST = million short tons

North America



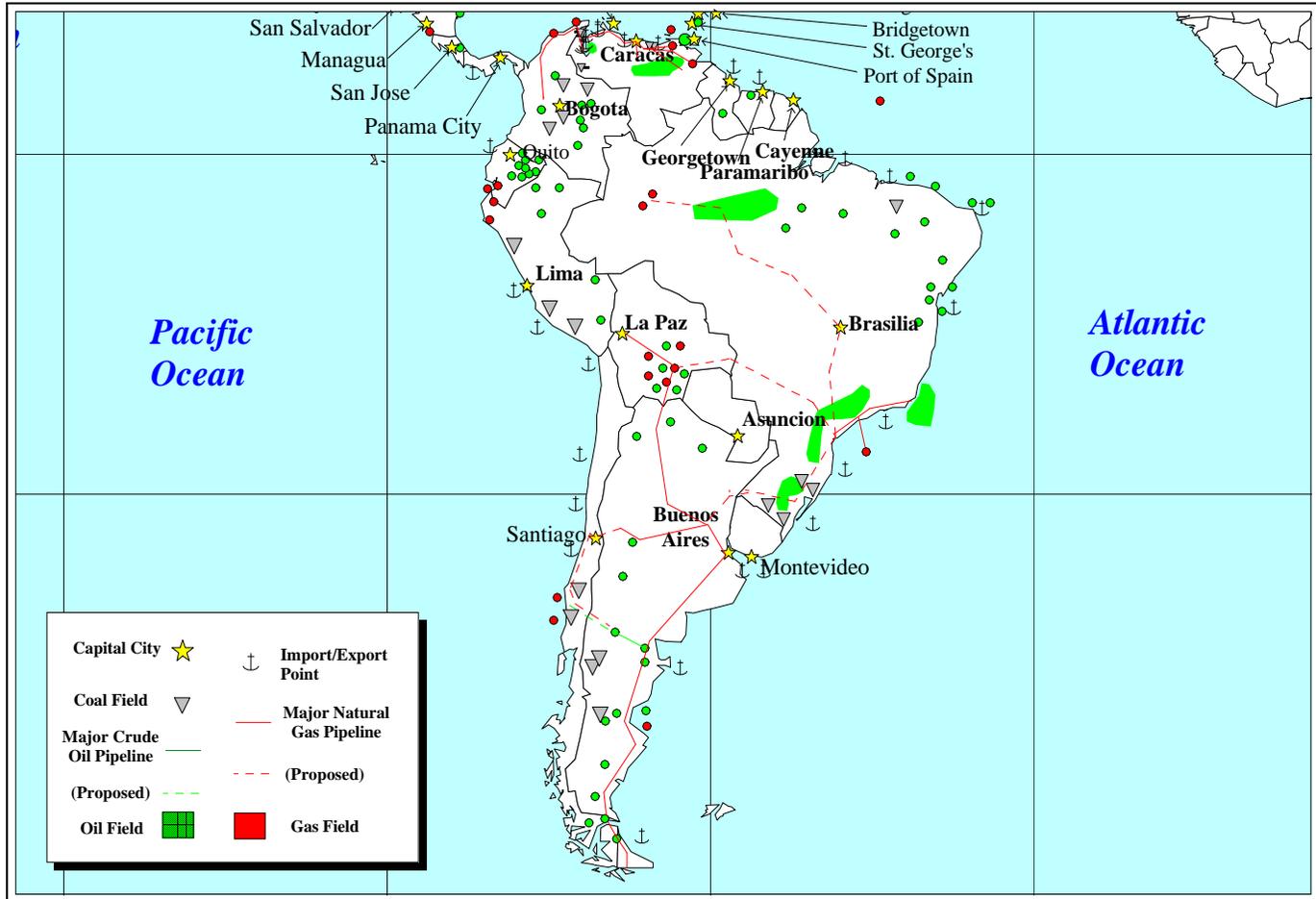
summitn.wor - 10/95

Central America and the Caribbean



summita.wor - 10/95

South America



summits.wor - 10/95

Refining Capacity* and Petroleum Product Trade

Country	Number of Plants	Crude Distillation Capacity (1000 b/d)	1992 Trade (1000 b/d)		Country	Number of Plants	Crude Distillation Capacity (1000 b/d)	1992 Trade (1000 b/d)	
			Product Imports	Product Exports				Product Imports	Product Exports
Canada	25	1,908	147	513	Argentina	12	665	20	99
Mexico	7	1,524	170	98	Bolivia	3	45	0.5	0.5
United States	173	15,319	1805	861	Brazil	13	1,253	107	93
Subtotal, North America	205	18,750	2122	1472	Chile	3	165	17	1
Antigua & Barbuda	--	--	3	0	Colombia	5	249	32	62
The Bahamas	--	--	81	66	Ecuador	4	148	9	20
Barbados	1	3	5	1	Guyana	--	--	6	0
Dominica	--	--	0.4	0	Paraguay	1	8	10	1
Dominican Republic	2	48	26	0	Peru	5	184	20	49
Grenada	--	--	1	0	Suriname	--	--	9	0
Haiti	--	--	5	0	Uruguay	1	35	5	0.1
Jamaica	1	35	30	3	Venezuela	6	1,167	12	652
St. Kitts & Nevis	--	--	1	0	Subtotal, South America	53	3,918	248	978
St. Lucia	--	--	1	0	Belize	--	--	2	0
St. Vincent/Grenadines	--	--	1	0	Costa Rica	1	15	16	2
Trinidad & Tobago	2	245	3	96	El Salvador	1	19	6	0.3
Subtotal, Caribbean	6	331	157	166	Guatemala	2	20	16	0
Puerto Rico	2	127	50	33	Honduras	1	14	10	0
U.S. Virgin Islands	1	545	4	257	Nicaragua	1	17	2	0.1
Subtotal, U.S. Territories	3	672	54	290	Panama	1	40	7	3
					Subtotal, Central America	7	124	59	5
					Total Americas	274	23,796	2640	2911

*Source: *Oil and Gas Journal*, December 19, 1994

Note: "Americas" excludes Cuba and European territories in the Caribbean.
b/d = barrels per day

Electric Generating Capacity in "Summit" Countries, 1993

Country	Gigawatts	Type (%)				Country	Gigawatts	Type (percent)			
		Thermal	Hydro	Nuclear	Other*			Thermal	Hydro	Nuclear	Other*
Canada	108.09	30	57	13	**	Argentina	17.32	57	37	6	--
Mexico	28.78	67	28	2	3	Bolivia	0.73	54	46	--	--
United States	695.12	72	13	14	**	Brazil	55.13	4	87	1	8
Subtotal, North America	832.00	66	20	14	**	Chile	4.81	36	64	--	--
Antigua & Barbuda	0.03	100	--	--	--	Colombia	10.22	24	76	--	--
The Bahamas	0.40	100	--	--	--	Ecuador	2.23	34	65	--	--
Barbados	0.14	100	--	--	--	Guyana	0.11	98	2	--	--
Dominica	0.01	63	37	--	--	Paraguay	6.53	1	99	--	--
Dominican Republic	1.45	86	14	--	--	Peru	4.19	41	59	--	--
Grenada	0.01	100	--	--	--	Suriname	0.42	30	70	--	--
Haiti	0.15	54	46	--	--	Uruguay	2.07	34	66	--	--
Jamaica	0.73	97	3	--	--	Venezuela	18.74	43	57	--	--
St. Kitts & Nevis	0.02	100	--	--	--	Subtotal, South America	120.49	23	72	1	4
St. Lucia	0.02	100	--	--	--	Belize	0.02	100	--	--	--
St. Vincent/Grenadines	0.01	57	43	--	--	Costa Rica	1.04	24	76	--	--
Trinidad & Tobago	1.15	100	--	--	--	El Salvador	0.75	32	54	--	14
Subtotal, Caribbean	4.12	93	7	--	--	Guatemala	0.70	37	63	--	--
Puerto Rico	4.23	98	2	--	--	Honduras	0.29	55	45	--	--
U.S. Virgin Islands	0.32	100	--	--	--	Nicaragua	0.46	61	23	--	15
Subtotal, U.S. Territories	4.55	98	2	--	--	Panama	0.96	42	58	--	--
						Subtotal, Central America	4.22	57	38	--	4
						Total Americas	967.37	61	26	12	1

*Includes geothermal, wind, and solar

** Less than 0.5%

Note: "Americas" excludes Cuba and European territories in the Caribbean.

Electric Power in the "Summit" Countries

- ▶ **In 1993, electric generating capacity in the Americas totalled nearly 970 gigawatthours, about 35% of the world's total.**
 - Most of the generating capacity (61%) is **thermal**, which represents the primary source of electricity in the United States, Mexico, and the Caribbean.
 - **Hydroelectric** capacity accounts for about one-fourth of the capacity. Hydroelectricity represents the primary source of electricity in Canada and most South and Central American countries. Reliance on hydropower is highest in Paraguay and Brazil (99% and 87% of generating capacity, respectively).
 - **Nuclear power** accounts for 12% of total generating capacity, but it is heavily concentrated in the United States and Canada. Mexico, Argentina, and Brazil also have nuclear generating capacity, but it represents a relatively small share of their total capacity.
 - **Geothermal, wind, and solar** generating plants make up only about 1% of the total capacity in the Americas; however, these sources represent about 15% of the generating capacity in two Central American countries (El Salvador and Nicaragua); 8% in Brazil; and 3% in Mexico.
- ▶ Access to a central power grid is more extensive in some countries than in others, particularly in terms of the availability of service in remote areas. The following statistics are from the U.S. Export Council for Renewable Energy.
 - In **North America**, the United States and Canada provide virtually universal access to electric power. Mexico has about 70,000 rural villages off-grid, but is using off-grid renewable energy for rural household electrification.
 - In **Central America**, where about 70% of the population lives in rural areas and topography limits access to the grid in many areas, only about 44% of the population is connected to the transmission grid.
 - Less than 40% of the population in the **Caribbean** region is connected to the electrical grid, but this varies widely. Dominica, the Dominican Republic, and Jamaica have low rates of utility service coverage while Barbados and Trinidad and Tobago have close to 100% coverage.
 - In **South America**, approximately 72% of the population has access to electricity.

4. Trade and Investment Overview

Key Details About Trade Agreements in the Americas

- ▶ Every country in the Americas is a member of the **World Trade Organization (WTO)** except Panama, which is negotiating to become a member. The WTO was created by the 8th round of multilateral trade agreements under the General Agreement on Tariffs and Trade (GATT), commonly referred to as the Uruguay Round. The Uruguay Round concluded on December 25, 1993, when 117 nations completed a new trade liberalization agreement. The WTO formally began operations on January 1, 1995.
- ▶ Eighteen trade arrangements were formed in the Americas through 1994, with more under negotiation. These include **customs unions, common markets, free trade agreements, preferential trade arrangements, and sectoral agreements**. The Summit of the Americas supports all regional and bilateral trade agreements consistent with the WTO.
- ▶ Negotiations are underway for a number of **new accords**, including Chile - Peru, Andean Group - Mercosur, and the Colombia and Venezuela - Central America Free Trade Agreement. In addition, negotiations are underway to include additional countries in several existing accords. These include: 1) Chile's negotiations with both Mercosur and NAFTA; 2) accession negotiations for Nicaragua, El Salvador, Guatemala, and Honduras to join the Mexico - Central America Free Trade Agreement; and 3) accession negotiations for Panama to join the WTO.
- ▶ Talks are also underway on the creation of the "**Free Trade Area of the Americas**," an initiative arising from the 1994 Miami Summit.

Ten Largest W. Hemisphere Trade Agreements

Rank	Trade Agreement	1993 Volume of Intra-Group Trade
1	North American Free Trade Agreement (NAFTA)	\$296.6 billion
2	Latin American Integration Association	\$22.7 billion
3	Caribbean Basin Initiative	\$10.6 billion*
4	Mercosur (Southern Cone Common Market)	\$9.4 billion
5	Andean Trade Preference Act	\$5.3 billion*
6	Andean Group	\$2.9 billion
7	Group of Three	\$2.4 billion
8	Mexico - Central America Free Trade Agreement	\$1.5 billion
9	Central American Common Market	\$939 million
10	Canadian - Caribbean Agreement	\$894 million

*Exports to the United States

Common Markets and Customs Unions in the Western Hemisphere

<p>Andean Group 1993 Combined GDP* \$145 billion; Intra-group trade \$2.9 billion</p> <ul style="list-style-type: none"> ▶ <i>Established</i> May 26, 1969; <i>effective</i> October 16, 1969 ▶ <i>Type</i> - Customs Union ▶ <i>Members</i> (5) - Bolivia, Colombia, Ecuador, Peru, Venezuela ▶ <i>Status</i> - Bolivia, Colombia, Ecuador, and Venezuela have created a free trade area. A common external tariff was adopted 2/1/95 by Colombia, Ecuador, and Venezuela; Peru to join 1/1/96 	<p>Mercosur (Southern Cone Common Market) 1993 Combined GDP* \$440.7 billion; Intra-group trade \$9.35 billion</p> <ul style="list-style-type: none"> ▶ <i>Established</i> March 26, 1991; <i>effective</i> January 1, 1995 ▶ <i>Type</i> - Common Market ▶ <i>Members</i> (4) - Argentina, Brazil, Paraguay, Uruguay ▶ <i>Status</i> - Four year trade liberalization program and a common external tariff adopted 1/1/95, with each country allowed a list of exceptions
<p>Central American Common Market (CACM) 1993 Combined GDP* \$28.6 billion; Intra-group trade \$939 million</p> <ul style="list-style-type: none"> ▶ <i>Established</i> December 16, 1960; <i>effective</i> June 3, 1961; <i>re-established</i> June 1990 ▶ <i>Type</i> - Common Market ▶ <i>Members</i> (5) - Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua ▶ <i>Status</i> - El Salvador, Guatemala, Honduras, and Nicaragua have created a free trade area, and agreed upon a common external tariff in 1993. The CACM members and Panama established a new organization for regional integration, the Sistema de Integracion Centroamericana (SICA); work began in 2/93 	<p>Caribbean Community & Common Market (CARICOM) 1993 Combined GDP* \$9.9 billion; Intra-group trade \$431 million</p> <ul style="list-style-type: none"> ▶ <i>Established</i> July 4, 1973; <i>effective</i> August 1, 1973 ▶ <i>Type</i> - Customs Union; eventual common market ▶ <i>Members</i> (14) - Antigua and Barbuda, The Bahamas (member only of the Caribbean Community), Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago ▶ <i>Status</i> - Common external tariff to be adopted by 1998. The Organization of East Caribbean States is a customs union that was founded in 1981 as a subregional group of CARICOM

*The sum of the Gross Domestic Products of member countries, in 1987 U.S. dollars.

Free Trade Agreements in the Western Hemisphere

<p>Chile - Colombia 1993 Combined GDP* \$76.5 billion; Bilateral trade \$167 million</p> <ul style="list-style-type: none"> ▶ <i>Established</i> - Partial agreements signed 12/93; 1/94 ▶ <i>Type</i> - Free trade area ▶ <i>Members (2)</i> - Chile, Colombia ▶ <i>Status</i> - Tariff elimination on 40 percent of exports under first phase. Goal is elimination of tariffs on 70 percent of exports in 3 phases over a 5-year period 	<p>Chile - Ecuador 1993 Combined GDP* \$44.5 billion</p> <ul style="list-style-type: none"> ▶ <i>Established</i> - January 1, 1995 implementation ▶ <i>Type</i> - Free trade agreement ▶ <i>Members (2)</i> - Chile, Ecuador ▶ <i>Status</i> - 1995 implementation will be similar to Chile's other bilateral free trade agreements. It provides for trade liberalization but does not cover such issues as intellectual property rights or trade in services
<p>Chile - Mexico 1993 Combined GDP* \$195.1 billion; Bilateral trade \$321 million</p> <ul style="list-style-type: none"> ▶ <i>Established</i> - September 1991; <i>effective</i> January 1, 1992 ▶ <i>Type</i> - Free trade agreement ▶ <i>Members (2)</i> - Chile, Mexico ▶ <i>Status</i> - Tariffs on limited number of goods reduced in 1/92; goal is harmonization of tax and investment rules and phaseout of most tariffs by end of decade 	<p>Chile - Venezuela 1993 Combined GDP* \$89.2 billion; Bilateral trade \$20 million</p> <ul style="list-style-type: none"> ▶ <i>Established</i> April, 1993; <i>effective</i> July 1, 1993 ▶ <i>Type</i> - Free trade agreement ▶ <i>Members (2)</i> - Chile, Venezuela ▶ <i>Status</i> - Goal is elimination of tariffs on most traded items by 1997

*The sum of the Gross Domestic Products of member countries, in 1987 U.S. dollars.

Free Trade Agreements in the Western Hemisphere (continued)

<p>Group of Three 1993 Combined GDP* \$267.3 billion; Intra-group trade \$2.4 billion</p> <ul style="list-style-type: none"> ▶ <i>Established</i> - June 13, 1994; <i>effective</i> January 1, 1995 ▶ <i>Type</i> - Free trade area ▶ <i>Members</i> (3) - Colombia, Mexico, Venezuela ▶ <i>Status</i> - Total tariff elimination over a 10 year period; exceptions are particularly important in agriculture. Also covers intellectual property rights, investment, services, government procurement. Colombia - Venezuela trade covered by Andean group agreement 	<p>Mexico - Bolivia 1993 Combined GDP* \$169.2 billion</p> <ul style="list-style-type: none"> ▶ <i>Established</i> - January 1, 1995 implementation ▶ <i>Type</i> - Free trade agreement ▶ <i>Members</i> (2) - Bolivia, Mexico ▶ <i>Status</i> - 1995 implementation
<p>Mexico - Central America Free Trade Agreement 1993 Combined GDP* \$192.6 billion; Intra-group trade \$1.5 billion</p> <ul style="list-style-type: none"> ▶ <i>Established</i> - August 1992; <i>effective</i> Costa Rica January 1, 1995 ▶ <i>Type</i> - Free trade agreement ▶ <i>Members</i> (6) - Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua ▶ <i>Status</i> - Framework signed in 1992 set terms for bilateral negotiations. Costa Rica talks concluded 4/94. Negotiations in progress with Nicaragua to be followed by those with El Salvador, Guatemala, and Honduras 	<p>North American Free Trade Agreement (NAFTA) 1993 Combined GDP* \$5.8 trillion; Intra-group trade \$296.6 billion</p> <ul style="list-style-type: none"> ▶ <i>Established</i> August 12, 1992; <i>effective</i> January 1, 1994 ▶ <i>Type</i> - Free trade agreement ▶ <i>Members</i> (3) - Canada, Mexico, United States ▶ <i>Status</i> - Goal is elimination of tariffs on most traded items in 10 years. Agreement carries an accession clause, and negotiations with Chile were formally begun June 7, 1995. The Canada - U.S. AutoPact of 1965 was incorporated into NAFTA

*The sum of the Gross Domestic Products of member countries, in 1987 U.S. dollars.

Other Trade Agreements in the Americas

Preferential Trade Agreements

- ▶ ***Andean Trade Preference Act*** - The Act provides duty-free treatment to the U.S. market for almost all products imported from Bolivia, Colombia, Ecuador, and Peru. The 10-year preferential access period took effect in 1991.
- ▶ ***Caribbean Basin Initiative*** - The Initiative provides duty-free treatment to the U.S. market for almost all products imported from Antigua and Barbuda, the Bahamas, Barbados, Belize, British Virgin Islands, Costa Rica, Dominica, the Dominican Republic, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Montserrat, the Netherlands Antilles, Nicaragua, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago. The preferential access program took effect in 1984, and became permanent in 1990.
- ▶ ***Caricom - Colombia*** - The agreement eliminates Colombian duties on goods covering 86 percent of imports from Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago. The agreement was signed in July 1994. Another 4 percent of duties will be eliminated by January 1998, with additional negotiations to follow.
- ▶ ***Caricom - Venezuela*** - The agreement eliminates Venezuelan duties on some goods from Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago. The agreement was signed in October 1992. After a 5-year period, negotiations are to begin to make the trade agreement reciprocal.
- ▶ ***Canadian - Caribbean Agreement*** - The agreement provides duty-free treatment to the Canadian market for almost all products imported from Anguilla, Antigua and Barbuda, the Bahamas, Barbados, Bermuda, Belize, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, and Turks and Caicos Islands. The preferential access program took effect in June 1986 and has no time limit.

Sectoral Agreements

- ▶ ***Latin American Integration Association (LAIA)*** - The Treaty of Montevideo of 1980 set up the LAIA as the successor to the Latin Free Trade Association. The LAIA has made little progress towards setting up a common market among member countries Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela; however, there are 32 partial scope and economic complementation agreements in place.

Multilateral Bank Assistance, Fiscal Year 1994 (millions of U.S. dollars)

Country	World Bank	Inter- American Development Bank	Country	World Bank	Inter -American Development Bank
Canada	--	--	Argentina	\$608.5	\$717.2
Mexico	\$1530.0	\$1063.4	Bolivia	\$51.4	\$173.1
United States	--	--	Brazil	\$1136.6	\$1132.0
Total, North America	\$1530.0	\$1063.4	Chile	\$10.0	\$75.0
Antigua & Barbuda	--	--	Colombia	\$159.0	\$42.6
The Bahamas	--	\$21.0	Ecuador	\$64.0	\$573.2
Barbados	\$7.8	\$4.0	Guyana	\$35.3	--
Dominica	--	--	Paraguay	\$115.0	\$20.9
Dominican Republic	--	\$30.3	Peru	\$284.0	\$494.7
Grenada	--	--	Suriname	--	--
Haiti	--	--	Uruguay	\$107.5	\$32.8
Jamaica	\$48.2	\$22.9	Venezuela	\$189.4	\$70.0
St. Kitts & Nevis	--	--	Total, South America	\$2760.7	\$3331.5
St. Lucia	--	--	Belize	\$20.0	--
St. Vincent/Grenadines	--	--	Costa Rica	\$22.0	--
Trinidad & Tobago	--	\$2.0	El Salvador	\$52.5	\$500.0
Total, Caribbean	\$87.0 ¹	\$80.2	Guatemala	--	\$1.4
Puerto Rico	--	--	Honduras	\$87.9	\$53.9
U.S. Virgin Islands	--	--	Nicaragua	\$126.6	\$194.5
Total, U.S. Territories	--	--	Panama	\$60.0	\$30.0
			Total, Central America	\$369.0	\$779.8
			Total Americas	\$4746.7	\$5254.9

¹Includes \$31.0 million for the Sixth Caribbean Development Bank Project.

Note: "Americas" excludes Cuba and European territories.

U.S. Assistance Programs, Fiscal Year 1994 (millions of U.S. dollars)

Country	AID ¹	EX-IM Bank ²	OPIC ³	TDA ⁴	Country	AID ¹	EX-IM Bank ²	OPIC ³	TDA ⁴
Canada	--	\$0.2	--	--	Argentina	\$1.5	\$582.4	\$336.6	\$1.0
Mexico	\$22.0	\$1379.2	--	\$2.8	Bolivia	\$89.3	\$3.4	\$7.5	\$1.3
United States	--	--	--	--	Brazil	\$10.4	\$1821.8	\$139.9	\$0.1
Total, North America	\$22.0	\$1379.4	--	\$2.8	Chile	\$2.9	\$9.0	\$12.4	\$1.1
Antigua & Barbuda	--	--	--	--	Colombia	\$6.3	\$84.7	\$118.0	--
The Bahamas	--	\$0.2	--	--	Ecuador	\$11.5	\$21.9	\$0.7	--
Barbados	--	--	--	--	Guyana	\$8.3	--	--	--
Dominica	--	--	--	--	Paraguay	\$3.1	--	--	--
Dominican Republic	\$15.5	\$10.4	--	--	Peru	\$139.2	--	\$31.5	\$0.7
Grenada	--	\$0.1	\$7.5	\$0.2	Suriname	--	--	--	--
Haiti	\$235	--	--	--	Uruguay	\$1.0	\$0.2	\$2.2	--
Jamaica	--	\$3.7	\$91.2	--	Venezuela	--	\$367.8	\$130.8	\$1.3
St. Kitts & Nevis	--	\$2.8	--	--	Total, South America	\$273.5	\$2891.2	\$779.6	\$5.5
St. Lucia	--	--	--	--	Belize	\$17.2	\$8.3	--	--
St. Vincent/Grenadines	--	--	--	--	Costa Rica	--	\$1.8	\$5.4	--
Trinidad & Tobago	--	--	--	\$0.7	El Salvador	\$57.6	\$16.8	--	--
Total, Caribbean	\$250.5	\$17.1	\$98.7	\$0.9	Guatemala	\$54.9	\$4.4	--	\$0.6
Puerto Rico	--	--	--	--	Honduras	\$32.9	\$0.3	\$2.0	--
U.S. Virgin Islands	--	--	--	--	Nicaragua	\$88.7	--	\$0.2	\$0.0
Total, U.S. Territories	--	--	--	--	Panama	--	\$34.8	--	--
					Total, Central America	\$251.3	\$66.5	\$7.6	\$0.6
					Total Americas	\$797.3	\$4354.1	\$885.9	\$10.0

¹Agency for International Development; ²Export-Import Bank; ³Overseas Private Investment Corporation; ⁴Trade and Development Administration.

Note: "Americas" excludes Cuba and European territories in the Caribbean.

Private Investment Opportunities in the Energy Industry in the Americas

- ▶ **Most of the major energy privatization initiatives in the Americas over the past 5 years were made by countries in Southern America.** Within the region, Argentina and Chile have engaged in broad privatization of their energy sectors. Argentina is viewed as a leader in oil and gas privatization (in addition to having implemented a highly successful privatization of state utilities), while Chile's private utility sector has served as a model for electricity privatization in other countries in the region.
 - Other Southern American countries are opening their energy sectors at a more gradual pace. Venezuela is opening up its oil sector to greater foreign participation. Brazil is considering the same, though to a lesser degree. Colombia, Bolivia, and Paraguay have formed substantial joint ventures between their state oil and gas companies and foreign partners. Ecuador's planned privatization of its oil sector has been stalled as the government addresses broader issues associated with its reform program. After some delay, Peru is expected to start privatizing state oil company Petroperu in 1996.
 - Colombia and Ecuador, where power shortages have been a recurrent problem, are now looking to privatize state-run utilities. Brazil is also liberalizing its electricity industry, and is developing national legislation which would define and regulate private companies' involvement in the country's power sector. In April 1995, Peru sold two major utilities to Chilean companies.
- ▶ **In the Caribbean and Central America, governments are actively pursuing privatization as part of the structural adjustment of their economies.** State-run utilities lead the list of energy industries being considered for privatization in countries such as Haiti, the Dominican Republic, El Salvador, and Jamaica. Other countries, such as Trinidad and Tobago and Grenada, have already privatized their power sectors. Trinidad and Tobago is engaged in several major hydrocarbon joint ventures, and Jamaica is currently seeking a buyer for its only refinery, state-run Petrojam.
- ▶ In September 1995, the **Canadian** government launched a successful public offering of the bulk of its shares in Petro-Canada, the predominantly state-owned oil and gas company. In the **United States**, a proposal to privatize the federal government's Power Marketing Administrations (PMA), which sell electricity from 133 federal dams, is being considered by Congress and the Clinton Administration. In Mexico, foreign and private contractors may participate in independent power projects and may bid for offshore drilling service contracts.

Selected Examples of Private Investment Opportunities

- ✓ In **Argentina**, former state-owned oil and gas conglomerate Yacimientos Petroliferos Fiscales (YPF) was privatized in 1993, in a sale that raised over \$3 billion. It stands as the most significant and successful privatization of a state oil company in the region to date. In addition, Argentina has successfully sold off Gas del Estado and the bulk of its thermal electric generating plants.
- ✓ In July 1995, three U.S. based companies led by Dominion Energy purchased management control and half-ownership of **Bolivian** state electricity group Empresa Nacional de Electricidad, for the price of \$140 million.
- ✓ The sale of Petro-Canada in September 1995 raised \$1.3 billion for the **Canadian** federal government, which reduced its stake in the oil giant to 20% from 70%. Canada first sold a minority stake in the company in 1991.
- ✓ In **Chile**, the former state electric utility, Empresa de Electricidad (Endesa), was privatized in the 1980s by the Pinochet government. Endesa, Chile's largest generating and transmission company, now has substantial stakes in both the Argentinian and Peruvian electricity sectors.
- ✓ **Mexico** plans to sell off the portion of its petrochemical industry producing secondary and tertiary products in the first quarter of 1996. Proceeds will be used to finance more strategic investments.

- ✓ In December 1992, **Mexico** passed a law allowing private ownership of power plants that sell electricity to the Comision Federal de Electricidad (CFE), the country's state-owned electric generation, transmission, and distribution utility. Several independent power projects are planned, and an independent agency has been established to issue the necessary certificates and to mediate any disputes between the CFE and private power producers.
- ✓ Sale of the **U.S.** federal government's Power Marketing Administrations (PMA), if approved, is expected to earn \$5 billion to \$10 billion. A compromise is currently being sought between various proposals for PMA privatization.
- ✓ **Peru** passed new oil legislation in 1993 which has led to a return of foreign investment and laid the groundwork for future privatization of Petroperu, the state oil company.
- ✓ **Venezuela's** Congress approved three major joint ventures with foreign companies, including a \$1.7 billion joint venture between Maraven, a state oil company affiliate, and Conoco (signed in June 1995) to convert heavy crude oil, and a \$5.6 billion liquefied natural gas (LNG) export project involving Exxon, another state affiliate, Lagoven, and others. In addition, a new law known as the Apertura was passed in July 1995 to allow joint venture exploration with private oil firms for light and medium crude oil. A substantial number of new joint ventures is anticipated in the near future.

Key Details About Energy Trade in the Americas

- ▶ In terms of total energy content, inter-American oil and gas flows were roughly equivalent in 1994 at a little less than 3 quadrillion Btu (quads) each. Inter-American coal flows in 1991 (the latest comparable data) were about 0.6 quads.
- ▶ Inter-American oil trade was about 6 million barrels per day in 1994, equivalent to roughly 5% of total oil consumption in the Americas. About 80 percent of all flows involved trade with the United States. The United States imported 4.4 million barrels per day from within the Americas in 1994 (mostly from Canada, Mexico, and Venezuela), and exported 430,000 barrels per day of oil products to the region. Venezuela exported about half a million barrels per day to other countries in the Americas.
- ▶ Inter-American natural gas trade reached 2.74 trillion cubic feet (Tcf) in 1994, equivalent to roughly 10% of natural gas consumption in the Americas. Almost all flows consisted of Canadian and Mexican trade with the United States. Canadian exports to the United States were 2.5 Tcf in 1994. The only other trade consisted of Bolivian natural gas exports of 0.07 Tcf to Argentina. This is expected to change in the near future, as both Argentina and Bolivia have proposed building gas export pipelines to Brazil and Chile.
- ▶ Inter-American coal trade, equivalent to roughly 3% of coal consumption in the Americas, consists primarily of exports from the United States to Brazil and Canada (18.2 million short tons, about 3/4 of all such coal trade in 1991). Canada and Colombia also exported coal to the Americas, primarily to Brazil and the United States.
- ▶ Inter-American electricity trade consists primarily of Canadian and Mexican trade with the United States. 1994 trade between Canada and the United States totalled 57 million megawatthours, compared to 3 million megawatthours between the United States and Mexico. Electricity trade also occurs on a smaller scale among several South American and Central American countries, but there are few interconnections.

Natural Gas Market Expansion Spurs Pipeline Investment in Southern America

- ▶ In 1993, Southern America (South America, Central America, and the Caribbean) consumed 2.1 trillion cubic feet (Tcf) of natural gas. Venezuela and Argentina accounted for most of the region's demand (862 billion cubic feet--Bcf--and 628 Bcf, respectively) as well as most of its production (40% and 26%, respectively). Brazil is the region's fastest growing gas market. Demand expanded 480% between 1980 and 1993 (to 145 Bcf/year).
- ▶ Outside of Argentina, infrastructure limitations restricted Southern America's gas consumption to just 11% of total energy consumption in 1995. However, Southern America's demand for natural gas is expected to grow 4-5% per year through the early 2000s. Increased demand will be spurred by strong industrial growth, gas industry deregulation, new environmental regulations, and growing inter-regional trade and cooperation.
- ▶ During 1995, progress was made toward the creation of a Southern Cone gas grid which ultimately could link gas exporters - Argentina, Bolivia, and Peru - with consuming countries - Brazil, Chile, Paraguay, Peru, and Uruguay.
 - In September, the Chilean government approved construction of two pipelines to carry Argentine gas to seven proposed power stations near Santiago.
 - The 353 million cubic foot per day (Mmcf/d) **GasAndes pipeline** will link Chile with Argentina's internal Transportadora de Gas del Norte (TGN) system near Mendoza. The 290-mile pipeline across the Andes at an altitude of 13,000 feet is scheduled to become operational in March 1997.
 - The 600 Mmcf/d **TransGas pipeline** will carry gas from Argentina's Neuquen basin to four proposed 350 megawatt power stations near Santiago. The 750-mile pipeline will cross the Andes at 6,500 feet and start up in September 1997. The Chilean government is expected to award gas import concessions and complete environmental impact studies in 1995.
 - In September, Bolivia and Brazil agreed to export volumes and prices for a proposed 1.06 billion cubic feet per day (Bcf/d), 2,000-mile export pipeline connecting Bolivian gas fields near Santa Cruz to São Paulo and Porto Alegre in southeastern Brazil. After obtaining financing, construction could start in March 1996, and shipments could begin in 1998. Volumes are anticipated to rise from an initial 494 Mmcf/d to 777 Mmcf/d by 2005.
- ▶ Future investments could bring gas from Peru's estimated 10.8 Tcf Camisea gas field to Brazil, Paraguay, and Uruguay, and from fields in northern Argentina to Brazil.

Northern America Is Expanding Gas Infrastructure at a Slower Pace

- ▶ In 1993, Northern America consumed 24 Tcf of natural gas. The United States, which uses gas to satisfy about 25% of its energy needs, accounted for almost 85% of this amount. Gas demand is expected to increase more slowly in Northern America than in Southern America, with an average growth rate over the next 15 years of about 1% for the United States and 2% for Canada. U.S. gas imports are expected to account for 15% of total consumption by 2010.
- ▶ Northern American gas trade is projected to expand over the next 15 years, mainly through exports from Canada and Mexico to the United States. Canada is predicted to increase its gas exports to the United States from 2.2 Tcf in 1993 to about 3 Tcf in 2010. In 1994, net U.S. gas exports to Mexico reached 40 Bcf. In April 1995, Mexico's government approved plans allowing private investment in the country's downstream gas infrastructure. This move could lead to increased regional gas trade.
- ▶ Between 1990 and 1994, Canadian pipeline capacity which supplies the northeastern United States rose by 350% to 580 Bcf. This was due largely to construction of the Iroquois and Empire pipelines. In 1994, pipeline capacity rose by 41% to 723 Bcf in the Western United States when Canada's Pacific Gas Transmission pipeline was expanded to 1.8 Bcf/d.
- ▶ Even with these expansions, Canadian pipeline capacity utilization currently exceeds 80%. In the Midwestern United States, plans are underway to expand the Natural Gas Pipeline and the Northern Border pipeline. The expansions are aimed at increasing Canadian market share in the Midwest and at developing new markets in the Northeast and Florida.
- ▶ One major Northern American gas pipeline project is the proposed 737 Mmcf/d Altamont pipeline, which would connect Alberta's Nova system with southern California markets via the Kern River pipeline and the Western Market Center in Wyoming. The project also could lead to Canadian gas exports to Baja California and Western Mexico. However, a U.S. extension capable of carrying Canadian gas to Baja California may be contingent on Mexico's conversion of the 600 MW Rosarito power station to utilize gas, rather than fuel oil. The Altamont pipeline would cost an estimated \$275 million and have a capacity of at least 300 Mmcf/d.

Appendix

Gross Domestic Product (in constant 1987 U.S. dollars)

Country	1993 (millions of U.S. dollars)	Annual Growth Rate, 1988-1993 (percent)	Country	1993 (millions of U.S. dollars)	Annual Growth Rate, 1988-1993 (percent)
North America:			South America:		
Canada	453,811	1.0	Argentina	125,719	3.3
Mexico	163,983	3.0	Bolivia	5,238	3.2
United States	5,134,500	1.7	Brazil	301,999	0.6
Caribbean:			Chile	31,183	7.0
Antigua & Barbuda	369	3.5	Colombia	45,320	3.7
The Bahamas	2,673	-0.1	Ecuador	13,295	2.6
Barbados	1,443	-1.4	Guyana	387	3.4
Dominica	155	2.7	Paraguay	4,675	3.3
Dominican Republic	5,536	1.6	Peru	22,677	-2.2
Grenada	180	2.3	Suriname	1,029	-3.2
Haiti	1,648	-5.0	Uruguay	8,369	2.7
Jamaica	3,492	2.8	Venezuela	58,042	2.7
St. Kitts & Nevis	129	2.4	Central America:		
St. Lucia	425	5.3	Belize	430	7.4
St. Vincent/Grenadines	202	5.4	Costa Rica	5,975	5.0
Trinidad & Tobago	4,744	0.6	El Salvador	5,348	3.4
U.S. Territories			Guatemala	8,910	3.9
Puerto Rico	29,563	3.1	Honduras	5,057	3.0
U.S. Virgin Islands	1,372	3.3	Nicaragua	3,362	-0.3
			Panama	5,944	5.6

Note: "Americas" excludes Cuba and European territories.